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ORIGINAL ARTICLES.

INTERESTING AURAL CASES.

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Fracture of the tympanic portion of the temporal bone.—According to Buck (*Diseases of the Ear*, p. 290), fractures of the temporal bone may be classified as follows: 1. Fracture or diastasis of the tympanic or squamous portion in the region of the middle ear, without implication of the pars petrosa. 2. Fracture of both the tympanic and petrous portions. As the last-named variety is, of course, much the more serious, the recognition of this distinction is of much practical importance. The following case illustrates fracture of the tympanic portion. It will be observed that the tuning-fork was heard better on the bone than in the air, that there was at no time any watery discharge from the ear, and that the hearing improved from $\frac{2}{XL}$ soon after the injury to about $\frac{2}{XL}$ a few weeks later. The ordinary hearing-distance for my watch is forty inches.

A. B., aged twelve years, while sliding down a banister fell, striking his left shoulder and the left side of his head against the floor. For about two hours afterward he was unconscious. There was a discharge of blood from the ear which, though slight, recurred from time to time for about a day and a half. There was no watery discharge. The patient remained in bed two days. No pain was complained of. On getting up he was somewhat dizzy, his gait was unsteady, and vision with the eye of the injured side was blurred. Hearing in the corresponding ear was greatly impaired. These symptoms, namely, deafness in the affected ear, blurred vision in the eye of that side, and unsteadiness of gait, remained when the patient visited me five days after his fall. Examination then gave the following results: Watch heard only on pressure; tuning-fork (C_2) heard louder on the mastoid than in the air in front of the ear; the membrana tympani was very red and its exact conditions concealed by this acute congestion. The vessels of the optic nerve of this side decidedly congested; vision in this eye rather less than $\frac{20}{XX}$, in the other more than $\frac{20}{XX}$. From these symptoms the opinion was expressed that there had

been a fracture in the temporal bone, and that the hearing, though permanently injured, would probably undergo some improvement, and that the ocular symptoms would disappear. This prognosis seemed warranted by the tuning-fork test and by the absence of any decided evidences of inflammation. Ten days later, the blurring of vision had disappeared, the gait was again all right, and the hearing was $\frac{2}{XL}$. At this time a line could be seen

running into the upper, anterior part of the drum-membrane, probably indicating the site of a rupture. The membrana tympani was still very red and the ordinary landmarks indistinct.

A case of "Menière's disease."—Mr. B., aged fifty years, consulted me recently for deafness and "ringing" in his right ear. He gave this history: Had never had syphilis; was addicted to the rather excessive use of alcoholic stimulants, but had not been on a "spree" lately; his general health was good. Two weeks prior to his calling on me, about four o'clock in the afternoon, he suddenly—"quick as a stroke of lightning," he expressed it—became very deaf in his right ear, and was attacked with violent tinnitus aurium, together with vertigo so intense that he was unable to sit in his chair. With the help of friends he was carried to his home, a short distance away, and put to bed. A few hours later intense nausea and vomiting ensued; the deafness and tinnitus remaining unchanged, and the vertigo still so intense that he was unable to sit up. By the next morning the nausea had disappeared and the noises in the ear were better, but the vertigo remained and confined him to bed for several days. When he visited me, ten days later, the only subjective symptoms were the deafness and tinnitus. My watch (normally heard at forty inches) was not heard even on pressure. The tuning-fork, sounding loudly, could be heard neither in the air nor on the bone; placed on the forehead it was distinctly heard in the good ear, but not in the deaf one. The membrana tympani of this side was a little dull in color and the light spot small, but these conditions were also found in the opposite ear, in which the hearing was good. Inflation by Politzer's method was felt in both ears, but did not affect the hearing. Examination of nose and naso-pharynx showed a condition as healthy as is usual in this climate.

Notwithstanding a negative history as to syphilis, the "mixed treatment" was administered for some weeks, but without effect. The deafness remained, and the noises became less, but did not cease.

The prevailing opinion is that cases such as the one just related are due to a primary disease of the labyrinth; probably, in this instance a hæmorrhage—but in the absence of a post-mortem the diagno-

sis of the exact pathological condition must be largely conjectural.

Restoration of the membrana tympani, and cure of suppurative otitis of ten years' standing.—Though there is nothing novel in the symptoms or treatment of the following case, it may be of value as showing the good result often attained by simple measures carefully executed.

H. W., a pale, "flabby" boy, fifteen years old, was referred to me for disease of the left ear on September 1st. The history given by himself and his mother was that he had had a "running from the ear" since his early childhood; occasionally acute exacerbations with intense earache would occur; he had suffered from such an attack for the last ten days; poultices had been applied a great part of this time, but though the discharge was lessened, pain continued and the ear felt stopped up. My watch (normally heard forty inches) was heard only on pressure. Several polyps were seen in the auditory canal, completely filling its deeper portion. The patient was extremely nervous and unmanageable, and it was found impossible to operate without general anaesthesia. In the meantime, cod-liver oil and iron were prescribed, the poulticing forbidden, and a douche of hot water was ordered. On September 3d chloroform was given by Dr. Walter Roberts, and under its influence I removed with Blake's snare the polyps from the auditory canal. The patient visited me at my office again on September 5th. Examination now showed the membrana tympani reduced to a narrow ring at the edge, a polyp growing from the tympanic wall anteriorly and the attachments of the polyps removed from the auditory canal plainly visible. I syringed the ear with a solution of bichloride of mercury, 1:3000, instilled a few drops of a four per cent. solution of cocaine, and after pricking the polyp with a sharp needle, rubbed into it and into the roots of those removed from the canal, a bead of nitrate of silver, fused on the end of a probe. There was at this time profuse suppuration. This treatment was continued daily for several days. When the polyps had been destroyed, suppuration was very much diminished. From this time on, the ear was carefully syringed with the bichloride solution and powdered boric acid blown into it three times a week. The membrana tympani was being rapidly regenerated and at each visit its approach to the centre was more evident. As the suppuration disappeared, the patient was required to call at my office only once a week and the same treatment continued. By October 10th there was a complete membrana tympani with no vestige of a perforation. Hearing-distance for my watch was eight inches.

The Druidic Banchoreion.—According to the last report on medical colleges of the Illinois Board of Health, two diplomas of the Druidic Banchoreion of Buffalo, N. Y., were offered to the Board of Medical Examiners of Montana for the purpose of obtaining license to practise medicine, but were not accepted. Several diplomas of "this concern" are registered in New Jersey.

EXPERIMENTAL STUDIES IN INTESTINAL SURGERY.

BY WILLIAM E. ASHTON, M.D.,
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OUR object in presenting this paper on intestinal surgery is to give a description of the methods and technique of the work we have done on the lower animals, so that surgeons who are unacquainted with this most important branch of surgery, and who desire to fit themselves to meet successfully the indications which arise from intestinal injuries or disease in man, may have a guide by which they can operate. We also desire to give to the profession such practical points on the surgery of the intestines as will not only increase success in operative work, but which will, at the same time, greatly increase the rapidity of manipulation. Abdominal surgery stands alone in that success is absolutely dependent upon familiarity of detail and rapidity of work. If no shock from a prolonged operation has been sustained, the patient's chances are increased a hundred-fold. Given, for example, a case of intestinal obstruction, resulting in gangrene and stercoraceous vomiting, with the patient bordering on collapse, can any surgeon hope to save his patient if he takes from one to two hours in making an artificial anus or in doing a lateral anastomosis with or without resection?

We pass at once to a description of the technique and instruments used in intestinal surgery.

Instruments.—A skilful abdominal surgeon is always known by the simplicity of his outfit and the small number of instruments that he requires. With the following armamentarium we are able to perform all the various operations on the hollow viscera: four pairs of hæmostatic forceps, a knife, a pair of scissors, needles, silk, silkworm-gut and catgut sutures, rubber ligatures and rings, and a few sponges and towels. A special pair of forceps for invagination will be found useful, but in most of our operations we used for this purpose hæmostatic forceps.

The knife, scissors, and hæmostatic forceps should be those used in general surgical operations. The invagination forceps should have long slender blades, at least an inch and a half in length. If the blades of this instrument be too short it is difficult to make the invagination.

Needles.—For the abdominal walls the long, straight, spear-pointed needles are the best. The needles used on the intestines should be long, straight, and thin; they should have as large an eye as the shaft will permit, without the needle being wider at the eye than in the shaft. Darning needles ("Sharps, No. 6") fulfil these indications better than any others that we have used.

Sutures and ligatures.—For the abdominal walls we prefer silkworm-gut. In the end-to-end invagination and in the implantation of the ileum into the colon it is necessary to make use of catgut, which should be heavy enough not to break readily. For all other purposes we found pure Chinese twisted silk, No. 1, the best. This material is strong enough to stand the traction necessary in tying, it is large enough not to be lost sight of during the operation, it is sufficiently rough not to slip through the fingers while being used (as pure silk will do), and it is readily threaded into the No. 6 darning-needle. For the ligation of bleeding vessels we use the same silk.

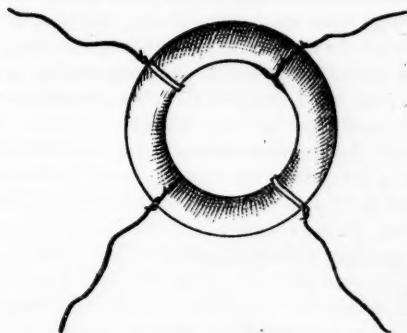
Rubber ligatures.—It is necessary to prevent faecal matter from invading the seat of operation during the manipulation. For this purpose many contrivances have been suggested and found useful. Nothing, however, is better than small rubber drainage-tubing, eight or ten inches in length. Ordinarily, two such ligatures are sufficient, but in an implantation of the ileum into the colon, for instance, it becomes necessary to make use of four.

Rings.—Most experimenters have been dissatisfied with the materials used for approximation rings, and have made an effort to improve upon them. We also have fallen victims to this desire, and have been using a ring which we believe has some distinct advantages. The material used is solid rubber cord, $\frac{1}{4}$ of an inch thick, and from $2\frac{1}{2}$ to 3 inches in length, according to the size of the animal to be operated on. For the human gut, which is larger than that of an ordinary dog, it is better to use a cord $\frac{3}{8}$ of an inch thick and $3\frac{1}{2}$ inches in length, or even longer if necessary. It is advisable to have rings of several sizes on hand during an operation.

In making these rings the cord is cut into either two or four segments, which are united, in the form of a circle, with catgut. The approximation ligatures, four in number, and made of Chinese silk-twist, No. 1, are tied to the catgut holding the different segments together. If the rings be made of two segments, as we usually make them, a strand of catgut is tied around the cord on either side, midway between where the sections are joined together. The approximation ligatures are fastened to them in the usual manner (see Fig. 1). These ligatures are threaded in the needles already described, and the ring is then ready for use. We claim for this ring many good points. It has a large opening, and the approximation surface is small and does not take up so much valuable room as many others do, at the same time the resulting approximation is sufficiently broad and firm. Again, these rings are solid, thus holding the parts perfectly immovable and also keeping the communication between the intestines wide

open. The firmness of these rings also makes them much easier to manipulate. Further, they are easily and quickly made at a trifling cost. The catgut holding the segments of the ring together is gener-

FIG. 1.



Approximation ring ready for use.

ally found to be in good condition as late as the fifth or sixth day. We have never known it to become absorbed early enough to interfere with the success of the operation. These rings would be perfection were they only absorbable.

With the exception of Brokaw's hollow rubber rings, other rings have too broad an approximation surface. In other words, they take up too much room in the gut and give too small an opening. The same is true of Senn's bone-plates, Penrose's rubber disks, Abbe's catgut rings (which in addition are not always absorbed, as proved by Van Lennep and Shimwell), Davis's catgut mats, and Robinson's rawhide plates. Excepting Senn's plates, they all are too pliable, or at least become so soon after being placed in position. Again, with the exception of the Penrose disks, they are too difficult to make and are expensive, and for some it is impossible to obtain the material. The ligatures in Senn's plates are so complicated as to make them dangerous. The Brokaw rings more nearly approach the advantages of our own.

For end-to-end invagination or for implantation of the ileum into the colon an entirely different kind of ring is required. This ring must be small enough to be introduced into the gut and as thin as is consistent with the necessary firmness. The surface must be comparatively broad. The best material for this purpose is the larger-sized rubber bands found in the shops, which are used for holding together bundles of paper. The bands should be fully half an inch broad and about one-sixteenth of an inch thick. They can be cut into strips of the required length, according to the calibre of the gut. The ring is then made by stitching the ends together with three catgut sutures. It is well, after the ring

is finished, to turn it inside out, so that the suture-knots shall be on the inside.

The main object in the after-treatment is to keep the patient as quiet as possible and to avoid unnecessary disturbance either with food or drugs.

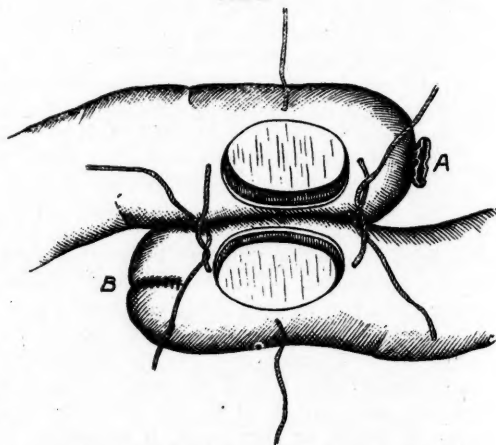
In describing the operations on the hollow viscera we will go into the details of only lateral approximation of the ileum with or without resection, and of end-to-end invagination and implantation of the ileum into the colon, as all other procedures are based upon these and are simply variations. For instance, the approximations of the duodenum and stomach are performed by almost exactly the same method as an approximation of two loops of ileum. A short incision (two or three inches) is made through the abdominal wall. The parts to be operated upon are brought up through the incision and invariably so nearly fill the opening that it is unnecessary to take any other precautions to protect the peritoneal cavity from dirt; consequently, irrigation and drainage are unnecessary. During the operation the parts are frequently deluged with large quantities of warm water.

Simple lateral approximation.—A loop of the small intestine is grasped with the fingers and brought through the opening. The gut is quickly stripped between the fingers until about eight or ten inches are free from fæces. A rubber ligature is then placed at each end of the cleared space and lightly tied with a single knot. Of course, these ligatures must perforate the mesentery. This is accomplished by grasping one end of the ligature by a pair of hæmostatic forceps, carefully avoiding bloodvessels; it is then passed through the mesentery close to the gut. The incision is now made on the free surface of the gut directly opposite its mesenteric attachment, and the ring introduced. The opening is made as large as the ring will permit; it may, however, be enlarged after the sutures are introduced. As soon as the ring is in position the ligatures are passed through all the coats of the gut from within outward, the needles removed, and the ends allowed to hang loose until the other ring is in place. The end of the gut near the second rubber ligature is now treated in the same manner, and the second ring introduced. The corresponding ends of the opposite ligatures are taken up and tied together, thus completing the operation. To strengthen further the approximation a supplementary suture should in all cases be placed entirely around it, on the serous surfaces. We prefer a continuous silk suture for this purpose, as it gives a better and safer apposition, but it should include only the serous coat of the intestine. After this step is completed, the rubber ligatures are removed and the field of operation is thoroughly cleansed with warm water; the intestines are then carefully replaced in the abdomen and the abdominal

wound closed. Silk sutures are used throughout this operation.

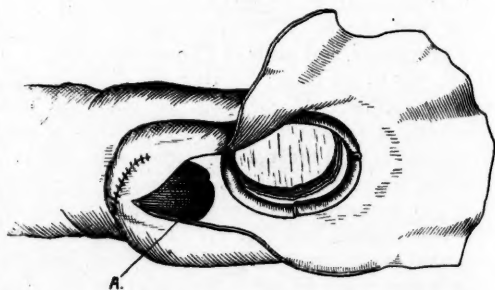
Lateral approximation with resection.—In this operation the same steps are taken as in the preceding, with some additions. A larger section of gut is emptied of fæces, and, after the rubber ligatures are adjusted, as much of the intestine is resected as is desired. Care is taken to leave sufficient gut (three or four inches) beyond each rubber ligature, in order to have room to invaginate the ends and introduce the rings. When the mesentery is reached in making the resection, the mesenteric vessels should be grasped on each side by a pair of hæmostatic forceps. The incision through the mesentery is carried on each side along the line of the mesenteric vessels to a single point at the base of its attachment; it is

FIG. 2.



Lateral approximation with resection. Rings in situ. Ligatures ready to tie. A. Cut end ligated; B. Cut end invaginated.

FIG. 3.



Approximation completed. Section of gut opened to show ring in place. A. Invaginated end.

here ligated and cut away, thus removing a wedge-shaped piece.

The next step is to invaginate the free ends of the intestine (Fig. 2). This is accomplished by first removing the hæmostatic forceps from one end and

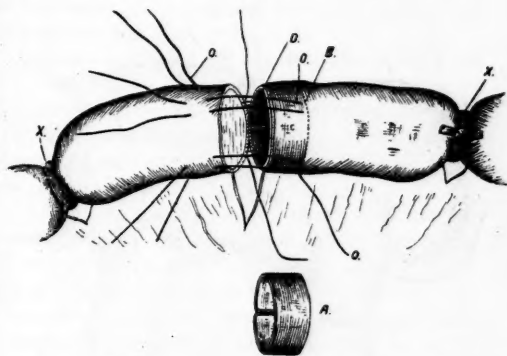
then grasping the cut edge of the gut with the invagination forceps, care being taken to include at least half an inch of the bowel; the free end is now pushed into the gut, carrying the mesentery with it. A continuous suture is "whipped" over this inverted end, beginning at the mesenteric attachment and including this point; the forceps are then withdrawn. When the invagination is completed the bleeding from the mesenteric artery ceases. The second free end is treated in the same manner. From this stage the operation resolves itself into a simple lateral approximation, and is performed in exactly the same manner. Silk sutures are used throughout this operation. (Fig. 3.)

End-to-end invagination.—The first step in this operation is to make a resection. This is performed precisely as previously described. A rubber ring, of the proper size, is then introduced into the proximal end of the gut. The proximal end is found by sprinkling a few grains of common salt on the loop of intestine and watching the peristaltic wave which is excited. With a continuous catgut suture the cut edge of the bowel is stitched to the lower edge of the rubber ring. This holds the ring in place and prevents the complication of the ring slipping out or of the ends of the intestine curling.

A strong catgut suture with a needle at each end is now introduced. Each needle is carried in turn into the lumen of the gut until it reaches the upper edge of the rubber ring; it is then made to perforate the rubber, passing directly through both it and the intestinal wall. By this manœuvre both ends of the suture are brought outside of the gut. The gut-wall and upper edge of the ring are thus caught in the loop of the suture. One of the sutures is placed close to the mesenteric attachment of the gut, and the two are placed at equal distances from it and from each other. The operator now takes up two needles of the same ligature and introduces them into the distal end of the gut. The two ends of the suture should be placed side by side, and should run parallel with the long axis of the gut. They should perforate the tissues of the distal end half an inch above the cut edge, should pass through the peritoneal and muscular coats only, and should be brought out about one-fourth of an inch from their insertion. The other two double sutures are placed in a similar manner and the needles removed. That portion of the gut containing the ring is now invaginated into the distal end, the mesentery being carried with it. All the sutures are then pulled taut, but before tying them care must be taken to turn in, around the whole circumference of the intestine, the cut-edge of the distal end. A supplementary suture should be placed around the whole circumference of the invagination. For this we prefer a continuous silk suture. We have found that the

operation can be more quickly and easily performed, and that it is safer if we rapidly stitch together the cut ends of the gut with a continuous suture passing completely through all the coats of the gut. This suture should be introduced just before the time of invaginating and tying the double sutures. No one has as yet brought this fact forward, and we believe that it will lessen the mortality to a great extent. The invagination is absolutely perfect, and with the final supplementary suture there is a minimum danger of leaking. (Fig. 4.)

FIG. 4.



End-to-end invagination. A. Invagination ring; B. Upper end of ring when in place; D. Ends partly stitched; OOO. Ligatures in place; XX. Rubber bands in place.

Implantation of the ileum into the colon.—This procedure consists essentially of two operations, namely, a resection and an invagination. First, the ileum is resected in the usual manner, care being taken to invaginate only the proximal end of the severed gut. The resection should be made as close to the colon as possible, so as to leave only a shallow blind pouch. The colon is then brought into the incision and a portion (four or five inches long) immediately above the ileo-cæcal valve stripped free from fæcal matter; the fæces are held back by an extra pair of rubber ligatures, introduced and tied in exactly the same manner as described in the approximation and resection operations. A ring (similar to the one used in the end-to-end invagination) is placed in the free (distal) end of the ileum and is fastened there in the same manner as is the ring in end-to-end invagination; three sutures are also introduced as in that operation. An opening, large enough to admit the end of the ileum containing the ring, is made in the colon at a point directly opposite the attachment of the meso-colon. The sutures from the ileum are then introduced into the colon in the same manner as they are in the distal end of the ileum in the end-to-end invagination, only instead

of being passed in the long axis of the gut they are here passed so that they radiate in different directions in the transverse axis. The necessity of this arrangement of the sutures will be at once apparent when the parts are in place. The sutures being properly introduced, the ileum, carrying with it the mesentery, is invaginated into the opening in the colon. The sutures are then drawn taut and securely tied, care being taken that the cut-edges of the colon are inverted around the circumference of the opening. A supplementary continuous suture of silk should be introduced as in the other operations. (Fig. 5.)

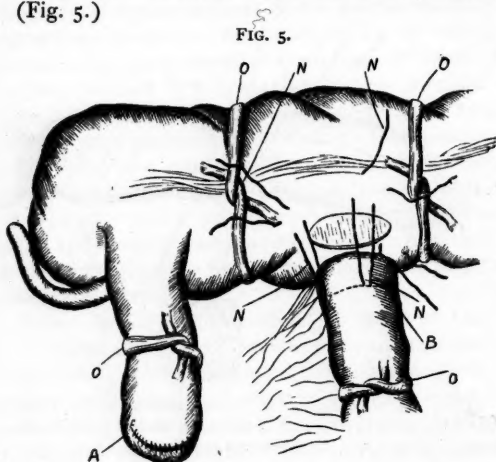


FIG. 5.
Resection of ileum, with invagination of ileum into colon. *A*. Resected and invaginated end of ileum; *B*. Upper end of invagination ring; *NNNN*. Ligatures in place; *OOOO*. Rubber bands.

We have conducted a large number of experiments on dogs during a period of some months, in order to familiarize ourselves with the technique of the operations, and to determine the safety of the several proposed operative procedures. The outcome of this experience has convinced us firmly that no one can do justice to his patients, should he be called upon to perform such operations without having previously done some experimental work, either on living animals or on the cadaver. The advantages of the living animal over the cadaver for such purposes are so obvious as to need no discussion.

In a large majority of the experiments we found that the omentum became adherent to the incision. This same condition is often found by those of us who are called upon to perform secondary operations upon the human subject. In post-mortem examinations we frequently noted that in cases in which during the operation no care had been taken to bring the omentum down, there were no omental adhesions. This was not only true as regards the incision but also the seat of the anastomosis. The question, therefore, naturally arises whether it would

not be well in all cases of abdominal section to push the omentum up out of the way before closing the wound. It may be argued that if the omentum is not brought down and interposed between the incision and the intestines, the latter will become adherent instead of the omentum. This, however, has not been our experience with either the lower animals or human subjects. The peristaltic action of the gut is sufficient to explain this difference.

As to the value of omental grafts we have our doubts. It is true, as Senn and others have claimed, that in some cases in which there is danger of leakage and consequent infection, an abscess may form, and the general peritoneal cavity be protected for a time by the graft. Such has also been our experience. But at the same time it is true that, in cases in which no omental graft was used we had an occasional abscess, which was just as surely shut off from the peritoneal cavity by the contiguous folds of intestine becoming adherent about the seat of infection. In either case the abscess would probably prove eventually fatal, if not relieved by operation. The disadvantages of the graft are so plain that we would not attempt to use it in the human subject, except under peculiar circumstances. The fewer cut surfaces left in the abdominal cavity the better, as each one is a point to which some near knuckle of intestine may attach itself. This is, to our minds, one of the greatest disadvantages of abdominal surgery, and it has been most forcibly brought to our attention in this experimental work on the intestines. We have had numerous opportunities to examine the condition of the parts at varying periods of time after operation. In almost every dog which died or which was killed, we found the seat of the operation bound up in a mass of adherent omentum and intestines. Sometimes so great were these adhesions that it required very careful search to discover just which knuckles of gut contained the approximation, and a number of times, in spite of the greatest care, we separated the approximated surfaces in our efforts to discover the seat of operation. Every unnecessary raw surface tends to complicate this condition, and for this reason alone we believe omental grafts should be abandoned. Our own operations were successful without them. If the omentum is brought down and attached about the seat of operation without cutting the graft free, it makes the mass only the more complicated. Robinson and others have reported cases in which a knuckle of intestine slipped under this kind of graft and became strangulated. In these adhesions there may be a great future danger to the patient. It occurred to us that perhaps some material might be found that could be smeared about the seat of the operation and protect the parts from adhesions until the inflammatory condition abated

successfully to make adhesions safe. We were not successful, however, in finding anything. Van Lennep tells us that iodoform collodion, as recommended by Stern, will prevent the adhesions, but it also prevents the union of the approximated surfaces. It is to be hoped that in the near future some reliable substitute may be found. Very frequently abdomens are opened to break up adhesions and relieve pain or obstruction caused by these adhesions. Why should not some of these patients on whom we do approximation operations succumb to this condition? That such will be the outcome in a certain proportion of cases we have no doubt.

Another factor which adds to the danger of future obstruction is the small size of the communication between the intestines. This opening is, of necessity, smaller than the calibre of the gut, and for this reason alone there is danger of future trouble. As a matter of fact, the openings, as usually made, are smaller than necessary. This is the greatest fault with the Senn plate. Brokaw's and our own rings give the best chance for a free communication; there is a larger hole in the ring, and the narrow approximation surface takes up less of the much-needed room in the gut. Even with these rings we have found the resulting communications in the intestines too small. The openings have a tendency to become even smaller as healing and contraction go on. We have found in a certain number of cases large masses of faeces forming an obstruction immediately above the communication—one or two dogs dying from this cause. How, with these small openings and the masses of adherent intestines, all patients can escape future trouble from the operation itself we cannot see. Of course, we do not mean to decry the advisability of these operations. Every surgeon should be prepared and able to do them. In cases in which they are advisable it is, as a rule, a matter of life and death to the patient. If we saved a life for only a few weeks or months, the operation would be well worth the doing. We desire only to call attention to possible future dangers, with a view to discerning some way of preventing them.

There has been some discussion amongst operators as to the best method of bringing the two loops of gut together after resection. We have found it immaterial whether the ends of the gut be brought together side by side in the direct line of its long axis, or whether the two ends be folded on themselves. In either case the mesentery may be stitched together by a few extra sutures, if the operator prefers. It is probably safer to insert these extra sutures and thus avoid all danger of a knuckle of intestine slipping between two folds of mesentery. In case this accident should happen, there would be danger of subsequent obstruction. However, unless the hernia occurred within the first few hours after opera-

tion, adhesion would have taken place between the two mesenteric folds, and thus obviated the danger.

When a resection and a lateral anastomosis have been made, there may be several causes of trouble in the subsequent progress of the case, referable to the blind pouches left by the invagination of the free ends. In one of our cases the invaginated end was so long as to hang down over the communication between the intestines, and this acting as a ball-valve, caused death by obstruction. In other cases the *cul-de-sac* formed by the invagination was found filled with hardened faeces. Both these difficulties may be avoided by invaginating only a small portion of the gut, and then making the anastomosis-opening close to the end.

Together with all other operators, we have found that there is little danger of faeces accumulating in the portion of intestinal canal excluded by these operations. In all cases this portion of the gut has contracted, and has subsequently been found to be free from faecal contents.

One of the most important lessons that our experimental work has taught us is, that the principle of *lateral approximation* should be used in every instance in which it can be applied. In itself it is a very simple and easy operation, and can generally be completed in from ten to fifteen minutes. In not a single case did we lose a dog on which we had performed a lateral approximation of two loops of the small intestine, with or without resection, except when we experimented with the cut ends after resection. Such has been to a great extent the experience of all operators. The principle of lateral approximation may be carried out almost *ad infinitum*. If two sections of the small intestine are to be joined, a lateral approximation should be made; if the small intestine and the stomach are to be brought together, the union should be by lateral approximation; if the small and large intestine are the parts to be dealt with, still a lateral approximation is the operation of choice: indeed, this method should be practised if any of the other hollow viscera are to be united. So thoroughly are we convinced of the greater safety of this operation over any of the other methods, that with our present experience we would not dare to attempt an end-to-end approximation or an invagination on the human subject in cases in which we had the choice. Our mortality from the end-to-end approximation after resection amounted to more than 30 per cent. Brokaw, in his experiments, had a mortality of 50 per cent., and other experimenters have shown no better results, whatever method was employed. The mortality of the implantation of the ileum into the colon after resection of the ileum just above the ileo-caecal valve was better. Our first two or three operations of this kind ended fatally, because we used a faulty method,

and there was leakage. After we had learned how to do the operation properly, our mortality did not rise much above 10 per cent. Other surgeons have done better than this. Shimwell claims that all his operations of this kind terminated favorably. He is the only one, however, who has been so successful. The operation involves much greater handling of the parts, and it takes about twice as long a time to complete. In addition to this, it is a comparatively difficult operation to perform, and we have found it an unsafe one, even after long experience and with the greatest care. On the other hand, where we resected the ileum at the ileo-cæcal valve, and then made a lateral approximation to the colon higher up, we had uniform success, excepting in one or two instances, in which death was due to other influences. Shimwell found ileo-colostomy a very fatal operation, and believed it to be due to the tenesmic action of the colon. His ligatures broke in seven of these cases, all of which died. It is much more probable that he did not properly repair the damage done by the break (of this accident we will have more to say later) than that the operation was at fault. The mesocolon is long enough to permit sufficient peristaltic action without putting any strain on the approximated surfaces; at any rate, not more than occurs in the case of the approximation of the small intestine. In every case the colon must be brought out of the incision to make the approximation. If, therefore, it has sufficient freedom for this, it is free enough not to be subsequently injured by a little peristaltic action. When the colon can be easily brought into the wound (and if it cannot, the operation is practically impossible), the lateral approximation can be made as safely between colon and ileum, as between two loops of the ileum itself. Senn reported to the American Surgical Society at Washington two cases of lateral approximation of the colon and ileum done on the human subject, one of the cases making a good recovery.

In cases of lateral approximation with resection, it is necessary before approximating the two loops of gut, to deal with the open ends. The method adopted by all surgeons heretofore has been to invaginate the free ends and close them with a continuous suture. This detail occupies some time and the operation can be materially shortened if a more expeditious way were found of dealing with them. It occurred to us that a simple ligation of the end of the gut might answer the purpose, and this was tried in a number of cases (see Fig. 2, A). After a ligature was thrown around the intestine as near the cut edge as possible, the exposed mucous membrane was quickly scraped away with the handle of the scalpel, and the ends were freely washed with water, and dropped. This proved successful in a large proportion of cases—about 60 per cent. In

the dogs which died, it was found that either quite a large end had been left, or the mucous membrane had not been scraped away with sufficient care. In all these cases there was a localized abscess about the stump, and in several a general peritonitis. As the matter now stands it would be an extremely unsafe procedure on the human subject. However, something may come of it in the future, and it is well worth the attention of experimenters. The stump is tied and dropped in this manner in cases of pyosalpinx and of diseased appendix vermiformis: Why not in the intestine itself? We would suggest that the ligature be applied, the stump carefully scraped free of mucous membrane (which can be readily done), the ends of the stump trimmed close to the ligature and a sponge saturated in an antiseptic solution held over it for a moment. It seems to us from our results that the method promises safety. Wherever there is sufficient material to invaginate, we would not think of attempting the ligation method, but cases may arise in which there is no tissue to lose and in such, if the latter can be done safely, it may prove invaluable. The point is well worth considering, and we hope to report further upon it.

The danger of breaking one of the approximation ligatures or of having it loosen during the manipulation, has been dwelt upon by several writers. Shimwell broke a ligature in eight different operations and lost seven of the animals. He asks, "What is the remedy?" and answers, "The only thing that can be done is to remove the portion of the ileum operated upon and to insert a new ring into the colon, being careful to pass the sutures well beyond the former sites." In our own work we broke a ligature three times, and in one case two of the four ligatures broke on account of a badly-prepared ring, and yet all the dogs made good recoveries. Lembert sutures were substituted at the points of break, care being taken to introduce them beyond the puncture of the broken ligature. We are at a loss to account for the bad results in Shimwell's operations, unless they were due to the rings. He used the Brokaw or rubber-tube ring, while we used our own solid rubber-cord ring. Our rings are so firm and do their work so well that after they are in place and two or three ligatures tied, the approximation is almost completed, and needs but little additional support. As we have proven in our work, it matters not if one of the ligatures breaks; the accident can be easily and quickly repaired by the insertion of a Lembert suture.

As to the necessity or even advisability of scarification, we decidedly take exception to the views advanced by other operators. The disadvantages and dangers of this detail in technique are, it seems to us, serious and its advantages *nil*. An uninjured

peritoneal surface will successfully resist infection, while one in which the solution of continuity has been broken will succumb. Consequently, if we scarify the peritoneal investment of the gut immediately around the openings, there is greater danger of infection, especially as that portion of this surface, not directly pressed upon by the rings, is practically free in the intestinal canal. This free scarified portion will, of necessity, become infected, and in case the approximation is weak at any point, even though it be not weak enough to allow of actual leakage into the peritoneal cavity, yet the adjacent scarified and approximated surfaces will be infected. In consequence of this, abscesses form between the approximated surfaces, and even on the sides of the approximation in the peritoneal cavity. Or, if the whole surface be infected, when the rings fall away, it will be found that union is weak or has not occurred. We have found these conditions in several cases in which scarification was used, but never when the approximation was made without it. Again, the bleeding almost always incident to the scarification considerably embarrasses the subsequent handling of the sutures and the completion of the final steps of the operation. If there were any advantages in the scarification these risks would be justified, but there are none. In no instance did an approximation fail where we did not scarify. The rings always remain in place for from four days to a week, and by that time the union of the unscarified peritoneal surfaces is sufficiently firm to resist any pressure likely to be brought to bear on them from within.

TREATMENT OF BLADDER DIFFICULTIES IN OLD MEN.¹

BY JAMES A. JACKSON, M.D.,
OF MADISON, WISCONSIN.

The general surgeon may profitably arrange the numerous subjects within his province into groups, classified in conformity with pathological, physiological, or anatomical relations.

Affections of the bladder are no exception, but should be considered from a standpoint which views the genito-urinary system as a whole, beginning with the meatus and ending with the kidneys, having always an eye to the interdependence and functional and structural relations between the various parts during health, as well as to their mutual influences when diseased. Anything, however, like an exposition of the pathology, diagnosis, and treatment of all the abnormal conditions of the bladder, or even of the diseases of this organ in old men, would far exceed the limits of such an article as this, it being my purpose merely to make a few suggestions which

I hope will be of use in the management of these cases.

The proper action of the urinary system requires a normal condition of all its parts. If any one part be deranged, congenitally or by acquisition, the effect may sooner or later be felt throughout. The kidneys must be sound in function and structure, the pelves and ureters free and unobstructed; the bladder must be adequate as a convenient receptacle, with intact sphincter and detrusor muscles permitting periodical evacuations in a healthy manner; the prostate gland must be devoid of inflammation or hypertrophy, the circular muscles of the deep urethra exempt from spasm, and the calibre of the urethra, from meatus to bladder, must be up to the normal standard, and free from stricture.

It should be remembered that, although the pathological or mechanical conditions leading thereto may be numerous and varied, the end is practically the same—retention of urine, which unrelieved is followed by a typhoid, comatose state, terminating in death from "septo-uræmia," the result of absorption of ptomaines and non-elimination of urea. Hence, it is to the postponement or prevention of this final stage that all our efforts should be directed. Many patients have had more or less trouble for some time before applying for treatment, frequent and difficult micturition being the usual complaint, and assistance is not infrequently deferred until retention results, and the case has become complicated by consecutive pathological states of these organs.

Our ability to diagnose the exact condition will depend upon our familiarity with the numerous abnormal states of the urinary apparatus, and our skill in physical exploration; and it is equally true that our success in treatment will be in proportion to our recognition of the true causes, together with a judicious application of the most appropriate remedies.

We all have been taught to regard the prostate gland as answerable for most of these evils in old men, but if many preëxisting conditions had been earlier detected and properly treated, this gland would have escaped so much notoriety. This organ may, indeed, be the seat of the main difficulty, even though unrevealed by rectal examination. Therefore, we should not be satisfied with an investigation of this part only, but thoroughly inquire as to the condition of all parts of the genito-urinary tract.

Whenever, then, an old man complains of frequency or difficulty in micturition, or that he has to get up during the night to pass his urine, subject him to a careful examination to learn the cause of his trouble, be this a phimosis, small meatus, diminished size of the urethral canal, impacted calculus,

¹ Read before the Central Wisconsin Medical Society.

enlarged prostate gland, a diseased state of the bladder, a tumor or stone therein, or whatever else may be the probable or possible origin of the disturbance; and regard his kidneys as being in a more than doubtful condition; also do not forget that frequent micturition is often due to the overflow of a greatly-distended bladder.

Many of these cases have now begun their "catheter life," during which, unless otherwise relieved, the urine must be withdrawn once or more daily. Consider these people as always in a precarious state, for aside from risk of sudden retention, their kidneys may, at any moment, become badly deranged. These organs may suffer sudden congestion by reason of reflex influences, as in the so-called "urinary" or "catheter" fever; a nephritis, if already present, may become acute, or this disease may now for the first time appear; or, lastly, the renal organs are sooner or later liable to that form of suppurative inflammation from extension of septic processes from below upward known as "surgical kidney"; which name, rightly interpreted, means that the lower urinary tract has too often failed to receive the proper surgical treatment.

Look well to the patients' hygiene. Impress upon them the belief that their lease of life and freedom from complications will be proportionate to the care they exercise in regard to their daily habits of life. Avoidance of exposure during inclement weather is imperatively demanded; the labor of the kidneys is lessened when the skin is warm, but if unduly chilled, renal congestion and inflammation are very probable consequences, and for this reason the clothing should be sufficient to guard the surface from sudden or prolonged cold. The amount of exercise should be carefully regulated, overwork followed by fatigue with diminution of heat should be avoided, as it is apt to throw an additional burden upon the kidneys.

Keep the bowels regular, using, if need be, some gentle laxative, for a loaded lower bowel tends to congestion of the pelvic viscera, adds to the obstruction, and may cause hæmorrhage from the prostatic venous plexus.

Excesses in eating, and especially the over-use of malt or spirituous beverages, are to be forbidden, because they lead to indigestion, and load the urine with irritating substances, thus intensifying any existing disease, and not infrequently cause sudden retention.

The general health should be maintained, and remedies that give tone to the vesical muscles are often indicated; atony and paralysis of these parts are not seldom the starting-point of the trouble, and they always aggravate any other associated disease. The balsamic and stimulating diuretics and such remedies as disinfect and improve the urinary

passages are often valuable. The patients must be instructed to evacuate the bladder with punctilious regularity at the very onset of any symptom signaling future danger, provided this act can be accomplished in a natural way, and the organ completely emptied. Straining efforts should be checked as far as possible, and urination rendered easier by a squatting or other advantageous posture, the residue being expelled by gentle pressure upon the perineum with the hand. So soon as micturition *per vias naturales* also ceases satisfactorily to fulfil its purpose, the aid of the catheter must be called in.

When the case assumes a certain gravity, with urination at night, chronic cystitis, decomposing and residual urine, atony of the walls, and a depressed *bas fond*, the patient should be instructed in the introduction of an aseptic soft catheter. Indeed, the sooner the patient is taught how to evacuate the bladder in the evening by this method the better, for left to itself the disease progresses and dilatation and sacculation, with destruction of mucous membrane, follow as the forerunners of retention and intra-renal pressure, which are but too often the beginning of the end.

The instruments used by the patient should be selected by the surgeon, and time is well spent in teaching him how to keep his hands, catheter, foreskin, and meatus perfectly clean and free from septic matter. All filthy lubricants should be discarded in favor of carbolized or iodoformized fluid vaseline.

Unless the patient receives timely aid of a curative character, or unless his disease prove not to be amenable thereto, the time finally arrives when we are called upon to alleviate the pains and dangers of a distended bladder. In our laudable desire to feel the satisfaction of having skilfully evacuated this organ, we should not forget that there are some important indications in addition to the mechanical relief afforded by catheterization. Watch closely the condition of the kidneys, and remember that no matter how brilliant one artistic manipulation of the catheter may be, the interests of the patient will be far better subserved by the prevention of evil beyond the reach of surgical art.

Antiseptic precautions are as requisite in this condition as they are elsewhere. When aseptic conditions already exist, antiseptics may seem out of place, and in many cases of sudden retention from hypertrophied prostate or spasm of the urethra, the bladder is comparatively free from disease, and contains an acid urine devoid of pathogenic microbes. Often we cannot be sure as to this, and it is far safer to adopt the antiseptic system in all cases.

This holds with still greater force whenever there is an accidental exposure of raw surface by means of any kind of instrument. Therefore, in order to avoid repetition, I would urge the necessity of

always making use of this method whenever we perform any kind of operation on these cases, from the simple introduction of an aseptic catheter to the perfect antiseptic technique of a suprapubic or perineal cystotomy. By so doing we not only save the patient from the dangers incident to septic invasion of these organs, but prevent the still greater one of suppurative nephritis. We should endeavor to prevent by all possible means the occurrence of any reflex irritation due to the passage of instruments, which irritation would cause chills, fever, and prostration in proportion to the renal disturbance. Never pass the catheter with the patient standing or in a cold room. Put him in a warm bed, give a dose of quinine or Dover's powder, or bromide with a hot drink, and, if convenient, a warm bath. This, or similar treatment, equalizes the circulation and lessens reflex excitability. Either a hard or a soft catheter may be used.

The cautious use of cocaine ought perhaps here to be considered, but if an anæsthetic be necessary or advisable, I would generally prefer pure chloroform carefully given as being the safer agent under these circumstances. Obviate the risk of congestion and hæmorrhage due to sudden relief of pressure, by withdrawing at first very slowly only part of the bladder contents, gradually increasing the quantity removed at each subsequent evacuation until the organ can be safely emptied. It is well to replace part of the withdrawn urine by the careful injection of a solution of one of the safe antiseptic agents, like boric acid. This liquid will also serve to flush the urethra, and later on for daily irrigation of the bladder when cystitis is present or probable.

If, after fairly-well conducted efforts with the catheter, failure to reach the bladder ensues, it is wise to abstain from further fruitless attempts, and rather than inflict additional injury, to resort to one of the other means for emptying the viscus, the simplest and best of which is suprapubic aspiration, and which, properly done, is quite safe and may be repeated a few times with the hope that the relief so obtained will result in restoration of natural micturition, or, at least, in admission, *per urethram*, of the catheter. Should, however, these hopes not be realized, and the urine be foul and purulent, with chronic cystitis a marked feature, even this measure should yield to one more effective in establishing drainage, permitting irrigation, and affording physiological rest to the parts. We can then choose either suprapubic or rectal puncture with a curved trocar, leaving the canula *in situ*. Harrison's method of "tunnelling the prostate," or Cock's operation of perineal puncture with a bistoury, either of these would meet with my approval.

Did time permit we would also discuss the indications for perineal cystotomy at a period when the

urethra is yet permeable by a grooved sound, which operation in properly-selected cases, by affording rest and drainage to a distressed bladder, is capable of putting a stop to the disease.

AN EPIDEMIC OF *TINEA TRICHOPHYTINA CRURIS*.

BY HENRY W. STELWAGON, M.D.,

AND

B. FRANKLIN STAHL, M.D.,
OF PHILADELPHIA.

TINEA trichophytina cruris—*tinea cruris*, *eczema marginatum*, ringworm of the thighs—as met with in this country, may be briefly described as an eczema-like eruption, with a sharply-defined, red, elevated, sometimes papulo-vesicular or vesicopustular border, involving the cruro-genital folds, the inner surfaces of the thighs and contiguous sides of the scrotum, and at times extending downward several inches, exceptionally invading the pubic and lower abdominal surface, and, in rare instances, the axillæ. The severe type of the disease, involving the greater part of the thighs, lower abdomen, scrotum, anal folds, inner portions of the buttocks, with marked thickening and infiltration persistently rebellious to treatment, is, fortunately, rarely met with outside of certain countries. The cases here to be referred to presented in their clinical symptoms, nothing unusual beyond their acuteness and epidemic character; in some respects the area of disease was, comparatively speaking, somewhat limited, but this was doubtless due to the short duration and to the fact that therapeutic measures were early adopted.

This epidemic occurred, two or three years ago, in the Philadelphia Hospital, chiefly among the resident medical staff, but later in its course involving several officials and two or three of the nurses of the training-school. It was first noted in one of the resident physicians in July, and for six or seven weeks was limited to this patient. From this time on, however, its spread among his *confrères* was rapid, and before the disease had disappeared eighteen of the staff, several of the other officials, and several nurses had been attacked. Those of light complexion exhibited the more pronounced types of the disease, and the two out of twenty resident physicians who escaped were brunettes. So far as could be learned, in not more than two of the nurses was the cruro-genital region affected, but in two or three others several ringworm patches developed on other parts. As remarked, in most of the cases the surface involved was not large, but in a few instances the disease extended several inches down the thighs. Moreover, in a few cases, the axillæ were, primarily or secondarily, invaded; and

in several of the subjects also, one or two typical ringworm patches presented at other points of the general surface, for instance on the face, feet, and limbs. In almost all of the cases, and in all of the patches, the degree of inflammatory action, although superficial with inconsiderable thickening or infiltration, was unusually severe from the beginning, precluding, as experience showed, the use of the stronger applications commonly employed in the treatment of this affection.

The cases came under our conjoint observation and care after the epidemic was well established. Several of the resident physicians had prescribed for themselves strong remedies with the hope of aborting or rapidly curing the disease, but with scarcely an exception, with the result of aggravating the symptoms and bringing about a painful, eczematous inflammation. With this fact brought to our notice it was thought, under the circumstances, advisable to use one of the milder parasitocides, and a lotion of sodium hyposulphite, a drachm to the ounce, was, therefore, prescribed. In cases just recovering from the effects of too strong applications, a carbolized boric-acid lotion, containing a few minims of glycerin and alcohol to the ounce, was employed at first, this subsequently giving place to the wash of sodium hyposulphite. Under the continuous employment of the latter remedy, the disease was gradually brought under control and in the course of several weeks—by the middle of November—was completely relieved. In all, the disease had attacked about twenty-five persons, and this within a space of several weeks. Later there was a slight recurrence in one or two of the patients, which, however, rapidly disappeared under a resumption of treatment. In the whole hospital, including officials, physicians, nurses, and inmates, excepting possibly two or three cases which, upon an average, were always present in the institution, no other cases and no tendency to its spread were to be noted.

The main interest of this group of cases naturally hinges upon their source and the method of contagion. The epidemic itself had, we believe, in all probability, its origin in the case of the first resident physician attacked, and who, it will be remembered, remained the sole one affected for almost two months. In his case the disease was doubtless contracted in some accidental manner, for it could scarcely be accepted that this case and those subsequently affected had a common origin, inasmuch as the others were not attacked for some weeks later, and then almost simultaneously. The method and means of its spread may have been thus: The soiled linen of the resident staff was washed in the laundry of the institution at the same time and in the same machines, and it seems probable that in

this manner the spores and mycelium of the trichophyton from this first case, as soon as the fungus had developed in sufficient quantity to be an active source of contagion, found their way to the others. The linen of the other house officials and nurses attacked was washed in the same machines in which that of the physicians had been laundried, but on different days, and naturally the contagious elements remaining over in the machines, if present at all, would be in scant quantity; this fact would, we think, explain why so comparatively few of these officials, and probably only those especially susceptible, contracted the disease. That this is the correct explanation of this curious epidemic, however, we feel by no means certain, but after a careful and thorough examination into the facts and surroundings, it seems to be that which has the most plausible support.

ORIGINAL LECTURES.

DIGESTION, ASSIMILATION, AND OXIDATION— THEIR NORMAL AND ABNORMAL CONDI- TIONS IN RELATION TO HEALTH AND DISEASE.

*A Series of Clinical Lectures
delivered at the New York Post-Graduate Medical School
and Hospital.*

BY WILLIAM HENRY PORTER, M.D.,
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LECTURE III.

GENTLEMEN: To-day I show you a case of ordinary but somewhat persistent subacute rheumatism and a case of diabetes mellitus, not because they can be classed as dyspeptics, but because I believe that each of these conditions arises in a disturbance of the digestive and oxidative functions of the body. Our first patient, Mr. E., "was perfectly well" until six weeks ago, when he developed a moderately severe attack of articular rheumatism. His left wrist became swollen and painful, and its motion somewhat impaired. In his case the symptoms have been confined to this one locality, and at times have been quite severe. He has been treated in various ways but without permanent benefit. His urine is scanty, high colored, and strongly acid. He is pale and anæmic. His tongue is slightly coated, pale, flabby, and deeply indented by the teeth, indicating a poor nutritive state. His previous habits have been fairly good, but he has lived largely upon a vegetable diet, and has been much exposed to wet and cold.

This case is interesting, not so much for its intensity, as for its persistence, and clearly illustrates the necessity of a prolonged course of constitutional treatment to improve the general nutritive condition of the body, if the rheumatism is to be cured and completely eradicated from the system.

My theory in regard to rheumatism is, that it is chiefly caused by an over-indulgence in starches, sugars, and fats, more of these CHO compounds being taken into the system than can be completely oxidized, and as a

result, instead of the complete products of their oxidation—carbon dioxide and water, incomplete substances are formed, the nature of which is not accurately understood. These imperfect elements of oxidation are called antecedent products to the complete formation of lactic acid, and are taken up from the blood by the epithelial cells lining the uriniferous tubules and discharged into the urine as completely-formed lactic acid. The oxidation of the proteids or CHNOS compounds is also imperfectly effected, which gives rise to the presence of uric acid and urates in the urine.

The chief disturbances, however, are in the metabolic changes of the starches, sugars, and fats. The incomplete oxidation and imperfect nutrition, and the increased work thrown upon the kidneys furnish the true explanation of the renal disturbances or Bright's disease, frequently associated with or occurring as sequelæ to rheumatic attacks. The physiological abnormality that produces the one is a potent factor in exciting the other, the degree and intensity of the attack determining the result obtained. This supra-acidity of the urine has given rise to the common expression of over-acidity of the system and blood, a convenient but inaccurate way of speaking. Over-acidity of the system is impossible, for lactic acid cannot exist and circulate in the blood, although we can have a decrease in the normal alkalinity of all the fluids of the body as the result of imperfect oxidation. The antecedent products of lactic acid are assumed to be in the blood and to act on the dense or white fibrillated connective-tissue structures of the body and by their presence to excite an excessive determination of blood to these structures, giving rise to the symptoms commonly known as rheumatic. The lesion produced may be a simple engorgement of the blood-vessels of the part causing pressure-effects, and secondarily the painful symptoms; or changes truly inflammatory in character may be developed which cause the local and constitutional manifestations. In the former condition the constitutional symptoms are slight, but in the latter they are often well marked, thus enabling us to differentiate between the two conditions.

In subacute cases like that of the patient before us, in the muscular forms, and in the mild attacks of the acute variety of rheumatism, I am inclined to believe that inflammation in its strict limitations does not enter into the pathological conditions, but that the rheumatic poison causes a marked and often prolonged afflux of blood to the part, followed by severe pressure-effects and a hyperæsthetic condition of the nerves, and in this way the painful symptoms are developed and maintained. If the engorgement is prolonged a supra-nutritive condition is produced, new tissue is formed, and permanent structural changes are induced until finally the condition known as chronic rheumatism, and without inflammation, is developed.

That the rheumatic infection is a general and constitutional poison, and in all cases acts locally rather than through the central nervous system, is clearly proved by its capriciousness, often developing suddenly in a joint- or intermuscular septum, remaining for a few hours or days in all its intensity and then disappearing almost as quickly as it appeared. The first attack may be the only one, but more frequently it reappears either in the locality first affected or in some more remote part of the

body. This rapid appearance and disappearance is in opposition to a true inflammatory lesion, but indicates a congestive lesion, which can be quickly produced and as speedily dispersed. The results of treatment also point toward a congestive condition rather than an inflammatory lesion, as the only class of drugs which seem to give positive relief are the alkalies and those which depress the heart's action and lower the general blood-tension. For the acute rheumatic attacks nothing relieves so quickly and effectually as free mercurial purgation followed by salicylic acid or the salicylate of sodium. I prefer the following formula:

R.—Salicylic acid . . . 3 drachms.
Sodium bicarbonate . . . 2 “
Elixir of gaultheria . . . 1 ounce.
Glycerin . . . ½ “
Water sufficient to make . 4 ounces.—M.

Dose, one fluidrachm every hour.

The salicylates should be given hourly until their full effects are produced, then the interval between the doses should be lengthened from two to three or more hours, as may be required.

By closely following the rules of diet and treatment about to be given in connection with digestive disturbances in general, these recurring attacks of rheumatism can be prevented and the rheumatic habit completely eradicated. Success in this line may require more patience and persistence than falls to the lot of the mass of humanity, but it can be accomplished if desired.

Our second case, Mr. W. A. S., aged forty-two years, a cigarmaker, "was well" until six years ago. From boyhood up to the time that he became noticeably sick he was in the habit of eating very heartily, in fact, as he states it, "enough for two or three ordinary persons." About six years ago he commenced to suffer from dull aching pain in the lumbar region, swelling of the feet and legs, epistaxis and marked cephalalgia. He also had some cough associated with pain in the chest. His mouth and throat have been and are now very dry, and he has great thirst. Early in his disease the quantity of urine that he passed was small, but during the last five years it has been abnormally large. At the present time he is passing from seventy to eighty ounces of urine daily. The urine is strongly acid, lemon-yellow in color, has a specific gravity of 1030, and contains a large quantity of glucose and some albumin. The urea is decreased in quantity, while the uric acid is increased. There are marked periosteal tenderness and perceptible emaciation. He also complains of dyspnoea, anorexia, troublesome itching over the whole body, and marked constipation. Physical examination of the chest reveals the evidences of a moderate amount of chronic interstitial pneumonia, and a weak and feebly-acting heart. This is clearly a long standing case of diabetes mellitus.

My theory in regard to diabetes mellitus is that it is chiefly due to over-feeding, as is well illustrated in our patient. In fact all persons, from a physiological standpoint, are gormandizers, some to a greater extent than others. Some can stand the strain better and longer than others, because their inherent vitality is greater. Those who reach the maximum degree of over-feeding are especially liable to develop the uric-acid, the gouty, or diabetic condition, especially the latter.

TABLE I.

POSSIBLE PRODUCTS OF OXIDATION OF THE PROTEIDS OR CHNOS COMPOUNDS.

	Proteids +	Amt. of O. =	Urea	+ Uric Acid	+ Kreatinine	+ Glucose	+ Carbon Dioxide	+ Water	+ Sulphuric Acid.
1. Highest oxidation	C ₇₂ H ₁₁₂ N ₁₈ O ₂₂ S.	134 O =	9(CH ₄ N ₂ O)	.....	.....	.....	+ 63(CO ₂)	+ 37(H ₂ O)	+ H ₂ SO ₄
2. Supra- "		151 O =	7(CH ₄ N ₂ O) +	(C ₅ H ₄ N ₄ O ₃)	.....	.....	+ 6c(CO ₂)	+ 39(H ₂ O)	+ H ₂ SO ₄
3. Normal "		129 O =	4(CH ₄ N ₂ O) +	(C ₅ H ₄ N ₄ O ₃)	+ 2(C ₄ H ₇ N ₃ O)	.....	+ 55(CO ₂)	+ 38(H ₂ O)	+ H ₂ SO ₄
4. Sub- "		135 O =	2(CH ₄ N ₂ O) +	2(C ₅ H ₄ N ₄ O ₃)	+ 2(C ₄ H ₇ N ₃ O)	.....	+ 52(CO ₂)	+ 40(H ₂ O)	+ H ₂ SO ₄
5. Lowest "		76 O =	2(CH ₄ N ₂ O) +	2(C ₅ H ₄ N ₄ O ₃)	+ 2(C ₄ H ₇ N ₃ O)	+ 5(C ₆ H ₁₂ O ₆)	+ 22(CO ₂)	+ 10(H ₂ O)	+ H ₂ SO ₄

The foregoing table, which has been worked out in this connection, shows at a glance how incomplete oxidation of the proteids will yield either the uric-acid or diabetic condition. You also see by reference to the following table (Table II.) how much more oxygen is required to oxidize one molecule of starch, sugar, or fat than is demanded to satisfy one of a proteid nature.

TABLE II.

PRODUCTS OF OXIDATION OF THE CHO FOOD STUFFS.

Starch,	C ₆ H ₁₀ O ₅	+ 12 O =	6(CO ₂) 5(H ₂ O).
Sugar,	C ₆ H ₁₂ O ₆	+ 12 O =	6(CO ₂) 6(H ₂ O).
Palmitin,	C ₃₁ H ₅₈ O ₆	+ 140 O =	51(CO ₂) 44(H ₂ O).
Olein,	C ₅₇ H ₁₀₄ O ₈	+ 160 O =	57(CO ₂) 52(H ₂ O).
Stearin,	C ₅₇ H ₁₁₀ O ₈	+ 163 O =	57(CO ₂) 55(H ₂ O).
Total;	C ₁₁₇ H ₂₀₄ O ₂₀	+ 487 O =	177(CO ₂) 164(H ₂ O).

Thus we see that if we eat twice as much as can be oxygenated in the blood, and especially if the CHO compounds predominate, general body-oxidation must be imperfectly performed. As the starch, sugar, and fats are more easily oxidized, and require such a large amount of oxygen, they act as the chief factors in preventing the complete oxidation of the proteid compounds. After this supra-feeding and incomplete oxidation have been continued for a certain length of time the protoplasmic vitality of the hepatic cells is affected, and, as a necessary sequence, the bile-secreting and excreting powers of the liver are still more decreased, in fact, all the functions of the liver are seriously deteriorated. The digestive functions become more positively disturbed, oxidation perceptibly affected, and the emaciation progressive and marked. The work imposed upon the kidneys is now greatly increased and their nutrition impaired, and, as a result, the renal cells, like the hepatic, undergo marked swelling and granular metamorphosis, and constitute, with the primary degeneration of the hepatic cells, the only constant and uniform lesion in diabetes mellitus. The sequel of this imperfect action on the part of the liver and oxygenating function of the system is the development of an abnormally large number of incomplete products of tissue-waste. These finally reach the kidneys and are excreted with the urine, chiefly as crystalline uric acid, glucose or albumin. Sometimes only one of these products will be found in the urine, at other times all three will be noted in the same sample, as is the case in our patient of to-day. The milder forms of disturbed oxidation¹ will result in the formation of uric acid only, more severe cases² de-

velop in addition glucose. Others may have also derived albumin¹ and various by-products, all resulting from the incomplete oxidation of the proteids.

Viewed in this light the best food for a diabetic patient is a well-regulated mixed diet, which is limited in quantity and relatively small in the CHO elements. To prohibit the latter completely, as was at one time customary, does more harm than good. Let the quality of food be good, the quantity small, oxidation as nearly complete as possible, and then nutrition will be raised to the highest attainable standard, and protoplasmic vitality improved or completely restored. If this result is obtained the diseased condition, theoretically speaking, ought to be entirely eradicated from the system. The principal reason why this is not more frequently accomplished practically, is because the glandular epithelium throughout the body has become so much deteriorated, and the vital nutritive activity is at such a low ebb before the condition is recognized and treatment instituted, that the inherent power of the system is not sufficient to repair the damage and sustain the vital functions at the same time, even though the digestion and oxidizing powers of the body are placed in the most favorable condition.

Before commencing the discussion on the treatment of cases with a disturbed digestive function, it may be well to glance for a moment at the Tables which I have here for your inspection. First, let us look at the CHO compounds (Table II.), which are the most easily oxidized. If we consider the whole group together we find that it requires 487 atoms of oxygen to satisfy one molecule of the CHO group.

TABLE III.

RESULTS OF OXIDIZING CHO COMPOUNDS.

Starches, sugars, and fats	yield to the body	Heat, energy, and rotundity, and act as lubricating agents,	and are excreted from the body as	Carbon dioxide and water.
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We find by referring to Table III. that the oxidation of the starches, sugars, and fats yields to the system heat, energy, rotundity, and lubrication, but without the development of any tissue-nutrition, or muscular or glandular activity. The waste of oxygen, however, is not so great if we deal with the starches and sugars alone; but when the relative proportions of the CHNOS to CHO compounds in the animal and vegetable food-stuffs are considered (Table VI.) we find an enormous preponderance of the CHO elements over the proteids. Remembering how easily the CHO elements are oxidized, and

¹ Table I., line 4.² Table I., line 5.¹ The Post-Graduate Journal, p. 13, January, 1891.

that the digestion and oxidation of a vegetable albumin at best is a far more difficult task than is the oxidation of an animal proteid, I think you all can readily appreciate how eating too abundantly of the vegetable food-stuffs is very apt to overtax the oxygenating capacity of the system. Having to depend as we do upon the proteids or CHNOS elements for the development of tissue, muscular and glandular activity, and some of the bodily heat and energy (Table IV.), it is absolutely essential that we should maintain perfect oxidation of the proteids if the highest nutrition is to be sustained and the greatest working-power developed.

TABLE IV.

RESULTS OF OXIDIZING CHNOS COMPOUNDS.

The proteids $C_{72}H_{119}N_{19}O_{25}S$	{ are developed into all forms of bodily tissue }	yielding	{ Heat, energy, muscular and glandular activity, }	=
and are excreted from the body as				
	{ Urea, uric acid, kreatinine, carbon dioxide, water, and sul- phuric acid. }			

Let me refer to the following Table, which shows the relative proportions between the CHNOS and CHO compounds from a diet barely sufficient to maintain life to that demanded by forced labor.

TABLE V.

COMPARATIVE DIET TABLE.

Diet	CHNOS	CHO
Bare subsistence	100	100
Moderate exercise	180	161
Active labor	232	171
Forced work	242	189

We see that the increase in quantity is found to be greater in the case of the proteids than in the simple CHO elements, consequently the demand cannot be satisfied with a purely vegetable diet, without great danger of overtaxing the oxygenating capacity of the system and thus exciting conditions of disease. Of course, a few isolated cases can always be found of individuals who have seemed to accomplish the result upon a purely vegetable diet; but both theoretically and practically it cannot be done by the great mass of humanity. The inherent vitality of a few persons is very great and their oxygenating capacity unusually large, so much so that they seem to disprove completely the common rule. A close clinical study, however, of the habits of humanity at large, and experimental work carried out among soldiers and prison laborers, in whom the diet is accurately known and regulated, conclusively proves that there is marked deterioration of both physical and mental vitality if an exclusive vegetable diet is used. Among pure vegetarians the infant mortality is also very large and tuberculosis quite prevalent, the reverse being true if an animal or proteid diet is administered.

A mixed diet, well regulated as regards both quantity and quality, will unquestionably yield the most satisfactory results so far as perfect nutrition and working capacity of the system are concerned.

TABLE VI.

COMPARATIVE COMPOSITION OF FOOD-STUFFS.

	Water, H ₂ O.	Proteids, CHNOS	Starch, Sugar, and Cellulose, CHO.	Fat, CHO.	Salts.
Milk { Human	88.91	3.46	4.62	3.48	0.21
{ Cow's	86.23	3.73	4.93	4.50	0.6
Eggs	65.0	12.2	.....	15.3	1.0
Beef	77.5	16.0	.....	5.0	1.5
Beans	9.9	25.5	60.6	2.8	3.2
Peas	9.9	20.2	63.9	2.0	3.0
Bread	34.9	7.0	58.7	1.3	1.0
Potatoes	74.0	2.5	22.1	0.10	2.30
Wheat . . . . .	.....	18.0	67.40	2.10	2.50
Rye . . . . .	.....	12.5	70.55	2.25	2.60
Barley . . . . .	.....	12.96	81.15	2.76	3.10
Oats . . . . .	.....	14.39	66.92	5.50	3.25
Corn . . . . .	.....	12.50	77.41	8.80	1.25
Rice . . . . .	.....	7.55	90.75	0.80	0.90

In the foregoing table of food-stuffs we find that milk, the first food of the infant, contains a large percentage of CHO elements, but as the period of lactation progresses these CHO compounds gradually decrease. This large percentage of CHO elements is unquestionably intended to yield heat and energy to the growing tissues of the child, until they have developed sufficient vitality and inherent activity to be a source of heat and energy to themselves. Then, with the development of the teeth and the almost incessant motion of the growing infant, milk does not seem to be sufficient to satisfy the nutritive demands of the system, and eggs, meat, and the more highly nutritious foods are demanded if the highest physical and mental powers are to be developed. Too frequently, however, the CHO elements are increased at the expense of the CHNOS compounds; fat, soft, and plump babies are developed, false habits of feeding engendered, nutritive vitality is sapped, and a foundation laid for the entrance into the system of all kinds of disease, especially the tubercular infection. The proteid-fed baby is never very fat, but its limbs and muscles are plump and firm and its resisting power against disease is at the highest standard, in fact, it is not likely to contract disease of any kind, even if brought in contact with those of an infectious or contagious nature.

Taking this view of the subject, together with a clinical, careful, and personal study of hundreds of cases, I have come to the conclusion that imperfect diet, digestion, oxidation, and assimilation are the source of a large percentage of our chronic diseases. They are the foundation, as it were, in the development of all disease-processes, both acute and chronic. To be successful in the treatment of disease we must thoroughly understand this subject and apply our medicinal agents, not so much with a view to relieving the symptoms presented, but toward correcting the abnormal physiological conditions which are producing pathological processes. So soon as we are able to interpret the incipient manifestations correctly, we can at once go back to the primary source of the trouble, anticipate symptoms and effect cures before the more serious changes have had time to develop.

What I am about to say in connection with the so-called dyspeptic affections, applies with equal force to all disease-processes. Over-feeding, both in health and in disease, has, without doubt, been the cause of many an untimely death; and there is now a growing tendency to feed less and to oxidize what is taken more completely. Knowing that over-feeding causes incomplete oxidation and malnutrition, and that it is the potent cause of the intestinal and hepatic character of disease, we are placed in a position to treat these maladies rationally.

Having already found by our study of the physiological process of digestion, that the major part of the work is accomplished in the intestines and by the liver, we can easily rule out the stomach as being primarily at fault in a large majority of the cases presented for treatment.

From these observations, it is reasonable to suppose that in but few cases are dyspeptic symptoms to be interpreted as originating in the stomach, although, generally speaking, they have been so regarded and treated, with an almost universal history of failure so far as satisfactory and permanent relief is concerned. If we carefully analyze those cases that present symptoms directly referable to the stomach, we find, as well illustrated by our patient of last week and by hundreds of other cases that have come to this clinic for treatment, that behind them all, there is more or less intestinal and hepatic derangement, which must be removed before a perfect and permanent cure can be effected.

When the stomach is primarily and chiefly at fault, the diagnostic symptoms are marked discomfort and pain while taking food or immediately afterward, followed quickly by the belching up of acid or alkaline gases or fluids, associated with or followed by vomiting. So soon as the stomach is emptied, relief is afforded. Certain kinds of food-stuffs will aggravate this condition, while others will be well borne.

When the disturbance is intestinal and hepatic in character, there is no distress or pain at the time of taking food, and the stomach seems to tolerate all varieties of food equally well. But after the meal, the abdomen commences to swell, the clothing feels too tight, and tympanites and borborygmi are developed to a marked degree, the latter often keeping the patient awake at night. With the abdominal distention there is often uneasiness or even acute pain in the *scrobiculus cordis*, which may be so great as to cause nausea, vomiting, and faintness, or lead to the suspicion of the existence of malignant disease of the stomach, or of an aneurism of the abdominal aorta. This symptom is due to the transverse colon being abnormally distended and wedged upward and backward between the stomach and the vertebral column, which causes the solar plexus to be more or less severely compressed. Over-distention of the stomach without general tympanites, as a rule, does not compress the solar plexus and cause pain, whereas over-distention of the colon almost invariably does. After the distress and pain have lasted for a number of hours, the patient obtains relief by belching up the gas which has been accumulating in the large intestine—this accumulated gas having been forced back into the small intestine and stomach by the peristaltic action being reversed—or the gas may be passed *per anum*. The latter is the exception, for these

cases are usually obstinately constipated. The intestinal and hepatic cases usually have a dirty, muddy-looking skin, and are chronically semi-jaundiced. They pass scanty, high-colored, dense and acid urine, which often contains a large quantity of uric acid, urates and oxalates, and an abnormally small quantity of urea. The headache, vertigo, and various vague and neurasthenic symptoms indicate a condition involving the intestinal and hepatic functions rather than the stomach alone.

By a close study of a large number of these cases, I have become firmly convinced that a pure and simple stomach dyspepsia is exceedingly rare, if not almost an impossibility, while the hepatic and intestinal cases are daily seen by every practitioner. Treatment directed to the stomach relieves only temporarily at best, while attention to the intestines and liver will cure the most severe and confirmed dyspeptic.

In the class of gastric cases in which there is a hypersecretion of gastric juice or of its acid, the acute symptoms can be relieved by administering bicarbonate of sodium after each meal; this quickly neutralizes the over-acidity and tends to improve temporarily the general condition. Or the hypersecretion can be arrested by giving an acid before meals, which tends to decrease the secretion from the gastric membrane. Nitro-hydrochloric acid is the best form of acid to administer, as it improves the functional derangement of the liver, which is often a predisposing cause of the gastric symptoms. If we assume, however, that this gastric acid dyspepsia is due to a deficiency in the primary flow of the acid gastric juice and that the supra-acid condition is to be attributed to the lactic-acid ferment decomposing the saccharine elements and thus producing the acidity, then a different line of treatment must be instituted. If the bicarbonate of sodium is given for temporary relief, it tends to neutralize completely the acidity of the gastric juice and destroys gastric digestion, throwing the entire work upon the intestinal tract; in fact, all the alkalies seem to do but little good. The nitro-hydrochloric acid here again holds the first place among our list of remedial agents, but it should be administered after the meal with a view to converting the albumin in the stomach into syntonin, thus favoring the digestion of the proteids by the pepsin present. This together with the favorable influence of the acid upon the hepatic functions will improve the nutritive functions in general, and finally restore the gastric secreting membrane to a normal condition. These physiological differences must be recognized and appreciated if the most effective line of treatment is to be instituted.

The alkaline form of gastric dyspepsia is usually due to a deficiency of the primary flow of the gastric secretion, and is secondary to fermentative changes. This condition, like the former, can be both temporarily and permanently relieved by the administration of nitro-hydrochloric acid after meals. To give these cases pepsin, bismuth, and a host of other drugs, is simply a waste of time for the patient and ultimately discreditable to the physician.

This brings us to the most interesting part of our subject, namely, the management of intestinal and hepatic indigestion with general physiological impairment of all the functions of the body. The treatment of this

somewhat complex subject is best divided into two parts, the dietetic and medicinal.

Assuming that the condition of disease is due to over-feeding and incomplete oxidation, the first step is to remove the cause by cutting down the amount of food taken and to improve oxidation by exercise in the open air. My rule is, at first, to cut off as nearly as possible, all the CHO food-stuffs, and place the patient upon an almost exclusive proteid or CHNOS diet. This is best accomplished by limiting the food to from four to six ounces of skimmed milk or buttermilk every two or three hours, as may be required to satisfy the demands of hunger or faintness, or by an exclusive diet of matzōn.¹ In this way the CHO compounds are, to a large extent, excluded from the system, and all the oxygenating capacity of the body is brought to bear upon the proteid or CHNOS compounds or the truly nutritive elements. As a result of this line of action, oxidation of the proteids is forced up to a higher point than the normal standard, and the highest nutritive and reparative action is developed with the least expenditure of vital force. The amount of effete material to be eliminated from the system by the excretory organs is largely reduced, for by this more complete oxidation we get the simplest and smallest number of excretory products and those which are easy to eliminate, namely, urea, carbon dioxide, and water.

This is clearly illustrated in our first table (Table I., line 1), which shows the possible products of oxidation of a proteid body. This plan of feeding is continued for from three to six weeks, at the end of which time an almost insatiable craving for solid food is usually developed. This, in connection with the improved condition of the urine, is an indication that the nutritive vitality of the protoplasmic elements of the body has been improved, if not absolutely restored to its normal state, and that the system can stand a more varied diet. Eggs may next be added to the milk, and finally a little stale bread, with all kinds of lean meat, including beef, mutton, and fowls, as well as fish, oysters, clams, etc. Maccaroni can be substituted for vegetables, not because it is a CHO substance, but because it is chiefly composed of the proteid elements of the grain separated from the starch and sugars. It is best cooked by first boiling for two hours or until it is soft and jelly-like, then adding a little milk and cheese and baking. In this form it is a strongly nitrogenous food, but satisfies the cravings for a vegetable. By following this line of feeding, nutritive vitality will be restored, health reestablished and the patient finally brought back to a well-regulated and mixed diet. The excessive use of the CHO compounds, and especially potatoes, should be scrupulously avoided. I have several patients who, if they eat heartily of potatoes, will use so much of their oxygenating capacity that the proteids cannot be perfectly oxidized, and the fourth result in Table I. (line 4) is quickly made evident, by the urine being loaded with uric acid and urates within twenty-four hours after the ingestion of the potatoes.

Assuming also that there is a deficiency in the quality of the bile, either with an increased or decreased quantity, usually the latter, this condition needs early medi-

cal attention. First, it is wise to sweep the old bile from the system, which can be accomplished in a number of ways, such as by administration of from ten to twenty grains of calomel, alone or combined with a little jalap, or by administering fifteen or twenty grains of blue mass combined with a compound cathartic pill.

In some of the more obstinate cases the following triturate is very effective:

R.—Bichloride of mercury	} of each	1 grain.
Arsenious acid		
Powdered ipecac		2 grains.
Calomel		15 grains.—M.

Divide into fifteen tablets of which one may be given every four hours until six or ten have been taken.

The bichloride, arsenic, and ipecac all stimulate the hepatic cells and cause them to pour forth a larger quantity of bile, and the small and often-repeated doses of calomel excite at the end of twenty-four or forty-eight hours a brisk cholagogue action. By this combined action a very large quantity of the poor and useless bile is forced out of the system and room made for a new and active supply, and bodily oxidation is greatly improved. After ridding the system of the old bile, new bile must be supplied, which is best accomplished by the use of the following formula:

R.—Inspissated ox-gall	40 grains.
Sulphate of quinine	1 drachm.
Compound extract of colocynth	10 to 20 grains.
Extract of taraxacum	½ drachm.

Divide into twenty capsules, of which one should be taken three times daily before meals.

By giving the milk warm together with this inspissated-bile pill, the casein will be precipitated in fine feathery flakes and placed in a form to be most easily acted upon by the gastric and intestinal ferments. The bile reaching the intestinal canal helps to prevent decomposition, accelerates peristalsis, improves intestinal digestion, and hastens absorption. From the intestine some of this newly-acquired bile passes up together with the more perfectly liquefied food-stuffs to the liver, and furnishes to the hepatic cells fresh and new bile from which to manufacture a natural supply of biliary fluid. It also seems to aid the hepatic cells in their food-transforming power, as indicated by a decrease or disappearance from the urine of albumin, glucose, oxalates, uric acid and urates, with a marked rise in the percentage of urea.

Sufficient colocynth or some other cathartic agent should be added to the above-mentioned pill to insure one or two smooth well-formed passages daily; even slight looseness of the bowels is often of advantage and does not weaken the patient. The form of cathartic to be added will often have to be changed to meet the varying conditions of the system. Good judgment in the selection of the remedies to be used is absolutely essential, if the greatest success is to be attained in the management of these cases.

Associated with these conditions there is always imperfect innervation, especially of the nerves distributed to the digestive and hepatic organs, and in fact through-

¹ Prepared by Dr. Dadirrian, 213 Second Avenue, New York.

out the whole splenic arcade. This may be overcome by the following combination:

R.—Sulphate of strychnine . . . 1 grain.
Hydrochlorate of caffeine } of each 1 drachm.
Extract of damiana }
Hydrochlorate of cocaine . . . 20 grains.
Extract of taraxacum . . . ½ drachm.

Divide into twenty pills, of which one should be taken three times daily.

The strychnine serves as a bitter tonic and acts like an electric stimulant to the spinal centres and nerves distributed throughout the splenic arcade, thus primarily stimulating the glands which they supply to increased activity. The strychnine and caffeine stimulate the heart's action and raise the arterial tension, both of which are abnormally low, so much so as to be decided elements in preventing a perfect nutritive condition. The caffeine and damiana, especially the latter, are powerful nutritive tonics to the cerebro-spinal centres and motor nerves distributed throughout the splenic arcade. The cocaine is not added unless the pain from pressure upon the solar plexus is considerable or has been long continued and caused a persistent hyperæsthetic condition of the abdominal nerves. Hyoscyamus at times may be of service for its particular stimulating action upon the vasomotor nerves.

By scrupulously adhering to this plan of dieting, and by a judicious adjustment of the medicinal agents so as to assist nature in her defective condition, a very large percentage of these so-called chronic dyspeptics can be completely and permanently cured. The same can be said regarding Bright's disease, rheumatism, the uric-acid diathesis, diabetes, etc.

But treatment must not be stopped as soon as the patient commences to feel better; it must be continued for weeks and in some cases for months, until nature has had time to displace all the damaged protoplasmic elements and replace them with new and sound structures. When this rule is followed, the cure will be permanent, otherwise an early recurrence of the symptoms may be expected.

HOSPITAL NOTES.

WOMAN'S HOSPITAL OF PHILADELPHIA.

Service of JOHN B. ROBERTS, M.D.,
PROFESSOR OF SURGERY.

[Reported by MARY E. ALLEN, M.D., Demonstrator of Surgery.]

RADICAL OPERATION FOR UMBILICAL HERNIA.

A woman, forty-six years old, entered the hospital May 19, 1890, for operation upon an enormous umbilical hernia of four years' duration. Her health had been good until the appearance of the hernia, which was produced by lifting a heavy stove. Even the sudden protrusion of a part of the intestines through the abdominal rupture did not cause her to take to her bed, although she suffered from pain in the back, sides, and lower part of abdomen.

The mass increased in size, and after a time became dropsical, until the tumor reached to her knees. On May 12th, just before her admission to the hospital, the

thinned walls of the hernia ruptured, and a bucketful of dropsical fluid escaped. On May 18th she had a second discharge of a smaller quantity of the same kind of fluid. The next day she entered the hospital, complaining of borborygmus, accompanied by severe pain, although she had regular movements from the bowels. She also had nausea and a very poor appetite. The urine contained oxalates and red blood-cells. Upon the tumor were found several ulcerated openings, through which the discharge had taken place.

A few days later she had some chilliness, followed by a rise of temperature, and on May 25th her temperature was 101.6°. Later she had severe pain in the tumor, and occasionally vomited a greenish material. When the sinuses leading into the hernia were dressed, there was a discharge of about three teaspoonfuls of pus.

On June 13th she was etherized for the purpose of having a radical operation performed. The tumor at this time was about one foot in length, and rather more in width. The abdominal walls were thoroughly cleansed and an incision made, just large enough to permit exploration of the sac, in the hope that reduction might be accomplished. The omentum and bowel were, however, everywhere adherent, and it was impossible to reduce the bowel without making a larger opening. The incision was made by thrusting a grooved director through one of the former openings and cutting upward upon it. Following the incision there was a free discharge of fetid serum. A great deal of inflammatory lymph was found upon the intestine, omentum, and walls of the sac. Masses of this lymph were stripped off and removed; and, as it seemed impossible to return the congested omentum to the abdominal cavity, much of it was ligated in masses and removed. At the lower portion of the sac the lymph was in layers, increasing the thickness of the walls to half an inch. The intestines were also very much congested and friable, so that in breaking up the adhesions between them the two outer coats of the bowel were ruptured at one point for about an inch. This was at once carefully sutured with catgut. Finally, the lower margin of the hernial ring was entirely freed from adhesions, but above they were too firm to be broken up. The process of reduction was now accomplished through the lower part of the opening, which was enlarged a fourth of an inch by a hernia knife, leaving the stumps of the omentum and a portion of the colon still adherent to the upper border of the ring. The stumps of the adherent omentum made an excellent plug with which to clear the opening, and were accordingly stitched in position, after the abdominal cavity had been thoroughly irrigated with boiled water and dried with sponges. No drainage-tube was used, and no ligatures to bleeding vessels, torsion being sufficient. A large portion of the wall of the sac and skin were now cut away, including the thickened mass at the lower part of the tumor, and the walls were then securely sutured over the hernial opening. Antiseptic dressings were applied, and the patient was placed in bed in excellent condition. Her temperature was 101.2° F., and pulse 104. A mustard plaster was placed over her stomach, and she did not vomit till three o'clock on the following morning.

On June 14th, at noon, her temperature was 101.4° F., and pulse 136. Her abdomen was becoming tympanitic,

and four doses of Rochelle salt, of half an ounce each, were given at intervals of half an hour. Five grains of quinine in suppositories were also given every two hours. The administration of the Rochelle salt was followed by an enema of turpentine, egg, and water. Her bowels then moved, the stool being thin and containing shreds. In the evening assafoetida was added to the quinine suppositories. Small quantities of liquid food were given from time to time, and usually retained.

At midnight her temperature was 103.2° F., and pulse 146. She was very weak, and 20 drops of tincture of digitalis were given by the rectum.

Dr. Roberts saw the patient again at 3 A. M. June 15th, when she was immediately placed upon the operating-table, the dressings removed, and the wound thoroughly cleansed with bichloride solution. The stitches were removed from the lower angle of the wound in both the skin and peritoneal opening, and a glass drainage-tube introduced into the abdominal cavity, which was then thoroughly washed out with boiled water at a temperature of 110° F. The return water contained numerous flakes of lymph slightly tinged with blood. The tube was allowed to remain for drainage, and the dressings were reapplied. The patient, however, died at 7.30 A. M.

Autopsy five hours after death. The external wound had healed by first intention, as had also the peritoneal opening, except where the drainage-tube had been introduced. The intestines had also united. There was a small quantity of lymph and serum in the abdominal cavity. The part of the intestines not included in the sac was in good condition; the remaining portion was much congested, and showed some recent adhesions between the liver and diaphragm, and between the liver and the intestines. The transverse colon, which was not seen at the time of the operation, was very much congested, being, in places, almost gangrenous. Both the large and small intestine were greatly distended. No hæmorrhage had taken place. The omental stumps were in good condition. The patient's death was evidently due to septic peritonitis.

MEDICAL PROGRESS.

The Treatment of Whooping-cough.—The following treatment, is used very largely by certain of the leading specialists in diseases of children in Paris, for the treatment of whooping-cough. The treatment is divided into three periods. The patient should remain in one room or in bed, and the physician employs belladonna and small doses of opium with aconite, as in the following prescription:

R.—Tincture of aconite
Tincture of belladonna
Camphorated tincture of opium } of each
1 drachm.

Two to five drops once or twice a day, according to the age of the child, is the proper dose. If there is no febrile movement the amount of the aconite can be much decreased, and if constipation is present the opium should not be used. In the second period, or when vomiting comes on, ipecac may be given in small amounts to allay gastric irritation, and in the third

period when convalescence is established cod-liver oil, tonics, and Fowler's solution will be found of service.

The Treatment of Eczema of the Nostrils.—COPOZI recommends the use of the following lotion in the treatment of eczema of the nostrils:

R.—Powdered chloride of sodium
Powdered bicarbonate of sodium } of each
Powdered borax
Powdered salicylic acid } 75 grains.

Mix, and dissolve a large pinch of this powder in a wineglassful of hot water and employ the solution as a wash for the eczematous patch. At night it is well to dress the part with oxide of zinc ointment in the strength of ten per cent.

Inhalations for Ozaena.—MOIRE recommends the following to be used as a fumigation in the treatment of fetid nasal catarrh:

R.—Camphor 1½ drachms.
Tincture of iodine 3 "
Iodide of potassium 30 grains.
Tar 3½ drachms.
Ninety-per-cent. alcohol 3 ounces.
Water 6 "

Place this solution on a water-bath and inhale the fumes for two or three minutes, after which the nasal chambers should be washed out with a spray of 1-to-100 of carbolyzed water.

Ointment for Hæmorrhoids.—AUDHOUI recommends, in *L'Union Médicale*, the following ointment for hæmorrhoids:

R.—Extract of belladonna } of each, 15 grains.
" thebaïa }
Antipyrine 45 "
Mercury ointment 2½ drachms.
Simple cerate 1 ounce.

This is to be made into an ointment and applied to the inflamed hæmorrhoids. Rectal injections of warm water are to be employed, if constipation is present.

Toxic Symptoms produced by the Instillation of Cocaine Solution into the Cavity of the Middle Ear.—DR. FICANO, director of the dispensary for diseases of the ear in the Hospital Saint-Saverio de Palermo (*Gazzetta degli Ospitali*), writes that accidents due to the absorption of cocaine by the different passages into which the drug has been introduced are not rare. Those which follow simple applications to the skin in non-toxic doses seem to be due to certain idiosyncrasies difficult to explain. Accidents of this nature following instillation into the cavity of the middle ear, are but little known, and Ficano regards the following case as worthy of special mention. A woman, aged forty-five years, had suffered for a long time from tinnitus aurium, which had become intolerable. There was a moderate dry otitis, with a diminution in the acuteness of the hearing. Treatment by insufflation of air after the method of Politzer, with instillations of a few drops of five per cent. cocaine solution into the cavity by means of a catheter, was shortly followed by vertigo, nausea, vomiting, cramps, an ineffec-

tual desire to go to stool, etc. The symptoms lasted for several hours, and closely resembled sea-sickness. When we consider the small dose employed, it is doubtful if this was a case of true poisoning, and yet all the symptoms of poisoning were present. An ischæmic action upon the mucous membrane of the ear must be admitted, together with diminution of the circulation in the labyrinth, producing a modification in the tension of the internal ear; or there was a retraction of the mucous membrane of the ear cavity, producing a compression of the labyrinth, and acting upon the oval window; or, finally, the cocaine in modifying the quantity of liquid in the internal ear, modified also the endo-labyrinthine tension. Whatever the mechanism, there was produced a want of equilibrium in the fluid of the internal ear, with grave consecutive troubles. Practitioners should take pains to become acquainted with these dangers, in order to guard against the immoderate use of cocaine. The utility of the drug is undoubted in many of these cases, but it should be employed with great prudence, and in very small doses.

Treatment of Pneumonia in Children.—In the *Revue Générale de Clinique et de Thérapeutique*, the following method pursued by Sr. PHILIP is given for the treatment of pneumonia in children. For the relief of the congestion he advises that quinine shall be administered by the mouth, by the rectum, or hypodermically. If failure of respiration exists it may be well to give the sulphate of quinine in a cup of black coffee. If the circulation is in a condition of excitement and there is much fever, from one to two drops of tincture of aconite every three hours should be given, and if the bronchitis is intense syrup of ipecac should be employed. If the quinine is given hypodermically it should be prescribed as follows:

R.—Hydrochlorate of quinine . . . 30 grains.
Glycerin
Distilled water } of each . . . 2½ drachms.

Twenty minims of this solution may be injected hypodermically, and it is better to warm it before doing so.

If suffocative catarrh comes on, recourse should be had to counter-irritation in the form of mustard-plasters or large blisters over the chest, or in other cases wet cups may be employed. The latter, however, are not to be used if the child is very young. If much nervous excitement is present opium should not be given, but tepid baths should be administered and antipyrine cautiously used. When the cough is troublesome inhalations of steam may be advisable. If the case becomes very serious and seems about to pass into a condition of collapse the aconite should be stopped at once and quinine and caffeine given by the mouth or hypodermically.

These drugs may be well supplemented by the use of digitalis and alcohol. Oxygen inhalations may be employed if the dyspnoea is marked, and injections of ether may be useful if sudden cardiac failure seems imminent.

Treatment of Cold Abscess.—The employment of ethereal solutions of iodoform in the treatment of cold abscesses, often causes a great deal of pain. In consequence of this BILLROTH employs the following treatment:

The abscess is thoroughly opened across its greatest diameter, and its walls are rubbed with a tampon of iodoform-gauze. After this the cavity is washed out with a solution of corrosive sublimate of the strength of 1 to 3000, and finally after the edges of the wound have been sutured a mixture composed of 100 parts of glycerin and 10 parts of iodoform is injected through a drainage-tube, and allowed to remain in contact with the diseased surfaces.

The Treatment of Chlorosis by Copper.—MM. Pecholier and Saint-Pierre concluded from experiments upon animals with the subacetate of copper, and from observations upon persons engaged in manufacturing this salt, that verdigris, if absorbed slowly and constantly, favors the production of fat, and that women employed in the manufacture of verdigris are not subject to chlorosis. LIÉGEOIS, influenced by these conclusions, has administered copper to thirty chlorotic patients with excellent results. For this purpose he employed the pills of the aceto-phosphate of copper recommended by Luton in the treatment of tuberculosis. The formula of this pill is as follows:

R.—Neutral acetate of copper . . . ⅓ grain.
Crystallized phosphate of sodium ⅓ "
Liquorice powder } of each a sufficient quantity.
Glycerin
M.—For one pill.

If the patients were suffering from amenorrhœa, menorrhagia, or leucorrhœa, Liégeois added from ⅓ to 1½ grains of freshly-powdered ergot to each pill. One or two pills were given at the beginning of the midday and evening meals, preceded by from 15 to 30 drops of the tincture of nux vomica or 3 drops of the "bitters of Baumé." During or at the end of the meal a table-spoonful of the syrup of peppermint, containing diluted hydrochloric acid, was taken. This treatment was continued without interruption for from one to three months, and never produced nausea, gastralgia, or vomiting. A suitable hygiene and an appropriate diet were, of course, instituted. Under this treatment the condition of the patients improved, as shown by the color of the face and mucous membranes; the former emaciation was replaced by plumpness, and the visceral symptoms, including dyspepsia, disappeared.

As to the manner in which the copper cures chlorosis, Liégeois is of the opinion that, like the hypophosphites, the chloride of sodium, manganese, and arsenic, it stimulates the gaseous interchange between the blood and the tissues—hæmotosis—and also the functions of the digestive apparatus. The latter is shown by the increasing appetite and by a more rapid and perfect assimilation of iron.—*Revue Générale de Clinique et de Thérapeutique*, January 7, 1891.

A Mixture for Simple Colic.—DUJARDIN-BEAUMETZ it is stated recommends the following mixture in the treatment of colic.

R.—Strong chloroform-water . . . 4 ounces.
Decoction of orange-flowers . . . 4 "
Tincture of capsicum . . . 2 drachms.

A dessertspoonful of this mixture may be given every fifteen minutes until the pain is relieved.

CURRENT LITERATURE.

SATURDAY, FEBRUARY 28, 1891.

TREATMENT OF SIMPLE CHANCRE.

DU CASTEL writes that the treatment of simple chancres is essentially different from that of syphilitic chancres. While in the latter there is back of the lesion a specific poison, which will produce a general infectious disease, even though excision be practised in the first few hours after its appearance, in the simple chancre the conditions are absolutely different; no general infection follows its appearance, but local, inflammatory, suppurative, and gangrenous complications may easily arise. Instead of remaining solitary, as does the syphilitic chancre, it may multiply indefinitely. The danger of simple chancre lies, therefore, for the most part, in its virulence and in the ease with which it re-inoculates the tissues. The object of treatment, then, must be to destroy its virulence and to convert the ulcer into a simple wound. Ablation of the sore Du Castel regards as bad treatment, as there is danger of the fresh surface being inoculated in the process of removal. The best mode of treatment is the use of either the actual cautery or powerful chemical caustics. In applying these, care must be taken to reach all parts of the sore, for if any part escapes destruction it will furnish a virus capable of infecting the wound made by the caustic. The use of the thermo- and galvanocautery, and of electrolysis, as recommended by Apostoli, is attended with intense suffering, and Du Castel prefers chemical caustics.

Ricord employed the carbo-sulphuric caustic, which is composed of sulphuric acid and powdered vegetable charcoal combined in the proportions necessary to make a paste, which is applied to the chancres. This paste quickly dries and forms a sort of scab, which remains adherent to the sore for several days. When it falls off there remains a simple wound, free from virulence, which soon heals. This application, however, is attended with very severe pain.

M. Diday prefers Canquoin's paste—chloride of zinc. This is applied to the chancre, which should be well cleansed, but should not be bleeding, care being taken to cover the whole surface. Around the edge of the paste is applied a small circle of diachylon ointment, while a few drops of collodion are allowed to fall upon the surface of the paste. At the end of from one to three hours the diachylon ointment is removed and the collodion dissolved with ether. The paste is then readily detached, when the face of the eschar is found perfectly dry. If a suppurating spot remains, the cauterization has been incomplete, and the paste must be at once re-applied. The eschar formed by this method falls off on the sixth day, leaving a healthy wound which soon heals. This method is comparatively painless.

The destruction of a chancre by caustics is always a serious operation, and has a number of contra-

indications. The loss of substance which it entails and the cicatrix which results render it absolutely impracticable in the treatment of a certain number of simple chancres, such as those of the meatus or of the urethra. In cases of multiple chancres, if all cannot be treated at the same time, it is better not to cauterize any of them, because of the danger of re-infection. When the chancre shows a tendency to cicatrize, caustics should not be used. Wherever, from the form or seat of the chancre, such as subpreputial chancres with phimosis, the application will be imperfect, it should not be made.

When the patient is unable to bear such active treatment, it is necessary to employ some milder method. The ferro-potassic tartrate, according to Ricord, has a specific action upon phagedænic chancres. Such ulcers should be dressed with pieces of charpie soaked in the following solution:

R.—Ferro-potassic tartrate . . . 7½ drachms.
Distilled water . . . 6½ ounces.

M. Diday recommends the employment of a solution of silver nitrate, 12½ grains to 5 drachms of distilled water. Pledgets of cotton soaked in this solution are applied to the sore three times daily.—*La Tribune Médicale*, December 25, 1890.

CAMPHORIC ACID AND THE TELLURATE OF SODIUM AS ANTISUDORIFICS.

I. In the *Bulletin Générale de Thérapeutique* of January 13, 1891, COMBEMALE has published his clinical researches upon these two drugs. Camphoric acid, the formula of which is $C_9H_{11}(CO.OH)_2$, is made by heating camphor with ten times its weight of azotic acid. It occurs in flakes or colorless needles, which are transparent and bitter to the taste; it melts at 70°, and is slightly soluble in cold water, a little more so in boiling water, and readily so alcohol, ether, the fatty oils, and essences. BERTAGNINI (*Annales de chimie et pharmacie*, tom. xcvi. p. 248), experimenting with it upon himself, took by the mouth five drachms in two days without noticing any effect; he noted, however, that it could be recovered, undecomposed, from the urine. LEW (*Centralblatt für klinische Medizin*, 1890) has noted that when administered to tubercular patients subject to profuse sweats, in the large amount of half a drachm, or even one drachm in two doses, the one in the afternoon and the other in the evening, it produced an antisudorific effect, manifested some hours after absorption. The suppression, in some cases, did not occur until the next day, but occasionally the effect of a single dose persisted for several days. If, instead of giving the camphoric acid internally, an alcoholic solution was used locally, the same results were obtained. The substance never gives rise to untoward symptoms, either near or remote. DREESMANN (*Allgemeine medicinische Central-zeitung*, May 24, 1890) concludes that the drug does not act through the central nervous system, but by destroying the soluble products of the tubercle bacilli, which are the direct cause of the profuse sweats during the stage of pulmonary ulceration.

Combemale, in a series of seven observations, administered camphoric acid in doses of half a drachm daily, the whole amount being taken in a single dose at seven o'clock in the evening. From these studies he deduced the following conclusions:

1. Camphoric acid has a certain action upon the nocturnal sweats of tuberculosis; it very often causes them to cease, and is rarely without some effect.

2. These antisudorific effects are produced from the use of half a drachm per diem.

3. No disagreeable or dangerous effects, worthy of note, accompany the employment of the drug.

4. Camphoric acid acts in tuberculosis the more surely if the pulmonary lesions are not purulent.

II. Tellurate of sodium, $\text{Na}_2\text{TeO}_4 + 5\text{H}_2\text{O}$, as its name indicates, is a sodium salt of tellurium. It is obtained by heating a mixture of tellurium, or of its biniodide, with sodium, or with the azotate of sodium, or by the action of chlorine upon a tellurite in alkaline solution. It is soluble in water and alcohol, and occurs, after evaporation, in the form of a gummy mass, or as an amorphous whitish powder. The other tellurates of sodium, the acid tellurate, the white, and the yellow, are less soluble in water.

In experimenting with this drug Combemale has administered it in doses varying from one-third to three-quarters of a grain per diem, the time of administration being seven o'clock in the evening. The patients, all of whom presented the symptom of excessive sweating, were suffering from various disorders, tuberculosis, typhoid fever, acute articular rheumatism, and ulcer of the stomach. He arrived at the following conclusions from the results obtained:

1. The tellurate of sodium possesses a powerful influence over the night-sweats of phthisis.

2. These antisudorific effects are produced with certainty by doses of three-quarters of a grain per diem. Doses of from one-third to one-half grain do not give as sure or as pronounced effects.

3. After prolonged ingestion of the tellurate, some secondary troubles are apt to be produced; a garlicky odor of the breath shows itself occasionally.

4. The tellurate succeeds in all phases of pulmonary tuberculosis; but to stop the secretion of perspiration the dose should be in direct proportion to the advanced stage of the phthisis.

In comparing the relative value of the two drugs just studied, the tellurate of sodium is found to be superior in its antisudorific powers, and the most certain in its action. Combemale also decides that it is the best drug as yet introduced into the pharmacopœia for the profuse sweats of phthisis, and after this he prefers the camphoric acid. Not only do these drugs act favorably in phthisis, but in the sweatings of numerous diseases, such as rheumatism, typhoid fever, syphilitic pulmonary cavities, and dyspepsia. Their action is antiseptic in its nature, since they destroy the soluble microbic products, and thus stop the abnormal process.

THE EMPLOYMENT OF SALOL, BETOL, AND ARISTOL.

It has been well shown by Dreyfous and Hirtz that salol is a good antiseptic for the urinary pas-

sages and the intestinal tract. Recently it has been largely used by a Swiss physician, Weber, in the treatment of infantile diarrhoea, and under its influence the symptoms rapidly disappeared, the vomiting being arrested and the diarrhoea ceasing. He gave it in doses of three grains, with two drops of wine of opium twice daily.

The intestinal disturbances, which frequently antedate malarial diseases, call for two therapeutic measures, namely, quinine and an intestinal antiseptic. To meet the second indication salol has been found useful, because it divides in the intestinal canal into salicylic and carbolic acids, both of which check fermentation. The salol is rapidly eliminated with the urine. The dose in which it should be employed in such cases varies according to the age of the patient. To a newborn child, from one to three grains; to a child of two years, from three to seven grains; and to older children, from fifteen to thirty grains, may be given daily. This drug is also of service in the diarrhoeas of typhoid fever and tuberculosis.

Betol (naphtalol or salinaphtol) is a salicylate of naphtol, made by the action of beta-naphtol upon salicylic acid, and appears as a white, crystalline, odorless powder. It is insoluble in water, slightly soluble in alcohol and in oils, and has rather an agreeable taste, which facilitates its administration to children; and it is especially valuable because its toxic property is very feeble. It is also useful in the treatment of adults, and may be administered by either the rectum or the stomach. For rectal use it may be employed as an injection, the formula of which, as proposed by Marcigney, is as follows:

R.—Betol $\frac{1}{2}$ drachm.
Borate of sodium 80 grains.
Weak infusion of eucalyptus $1\frac{1}{2}$ pints.

It may be put up in cachets, each containing seven and a half grains. It may be associated with salol, or salicylate of bismuth, or both, or with the bicarbonate of sodium, prepared chalk, or magnesia. The following preparation is of special service in infancy:

R.—Betol, from 15 to 30 grains.
Syrup of orange-flower $7\frac{1}{2}$ drachms.
Mucilage water 5 "

Of this a dessertspoonful should be given in twenty-four hours.

The betol may also be administered in milk. It is an excellent intestinal antiseptic.

Aristol (the biniodide of dithymol) is rapidly coming into favor as an excellent substitute for iodoform. It possesses all the therapeutic properties of iodoform without having the inconveniences of its odor and its irritant and poisonous action. It is a reddish-brown amorphous powder, becoming more and more pale as it loses its iodine from exposure to heat or light. It is soluble in water, and glycerin, slightly so in alcohol; and very soluble in ether, chloroform, and liquid vaseline. The powdered aristol has already rendered great service as a cicatrizing agent in ulceration of the skin and mucous membranes, in epitheliomata, in ulcers of the leg,

and in tuberculous and syphilitic ulcerations. Its application to these ulcerations is not painful, nor does it produce any of the phenomena of general poisoning, as does iodoform. Under the form of a pomade containing from ten to twenty parts of aristol to one hundred of vaseline, it has been used in cutaneous diseases, such as psoriasis, eczema, lupus, etc. Some observers have employed it in diseases of the nose, throat, and larynx, and it has been used in gynecological practice in the treatment of endometritis, erosions of the cervix, and vulvar eczema. Swiecicki has made pencils and suppositories thus:

R.—Aristol 80 grains.
Gum arabic, a sufficient quantity to
make five pencils.

And

R.—Aristol 7½ to 15 grains.
Ol. theobrom., sufficient to
make one vaginal suppository.

It may be used in ethereal solution, or in colloidion if so desired.

Internally it has been given in pill-form associated with the hyposulphite of sodium in cases of foetid bronchitis and gangrene of the lung, with excellent results. In four or five days the sputa lose their offensive odor and the general condition is greatly improved. In pulmonary phthisis it diminishes the amount of expectoration.—HUCHARD, in *Revue Générale de Clinique et de Thérapeutique*, January 14, 1891.

THE TREATMENT OF SYPHILIS.

PROFESSOR KÖBNER, of Berlin, at the conclusion of a discussion on "The Treatment of Syphilis," gave the following *résumé* of his experience and opinions.

1. Regarding excision of the primary affection, in only a small minority of cases was he able to prevent further symptoms of syphilis by this means. As a method of operation he recommends excision combined with electro-cauterization. It is indicated as a prophylactic only at an early stage of the chancre, and in extensive breaking down of the induration, or, if the latter is obstinate to ordinary treatment, for the purpose of removing the focus of the disease. The extirpation of inflamed inguinal glands is still more rarely successful and absolutely futile if deeper glands are involved.

2. He does not believe in the preventive treatment of syphilis by mercury, and thinks that the use of the remedy should be limited to hastening the healing of a serious primary sore, and to diminishing the danger of contagion, as in the case of a man with a family.

3. He considers the continuous mercurial treatment of Fournier by no means infallible, and for many cases superfluous, as demonstrated by several cases.

This method should be limited to certain indications, as to impending marriage or grave localization of the disease.

He further calls attention to the destructive in-

fluence of mercury on the digestion and on the nervous system.

In harmony with the majority of the specialists who attended the International Medical Congress, he refutes Fournier's statement that syphilis becomes "*presque fatalement tertiaire*" without a saturation of the system for years with mercury.

Mercury alone cannot cure syphilis in a person who was not previously healthy, unless the health is greatly improved by hygienic treatment. Upon the hygienic management he lays great stress.

In several individuals, who could not take mercury by the mouth, the rectal administration proved efficient and safe.—*Berliner klinische Wochenschrift*, December 29, 1890.

TREATMENT OF CONSTRICTIONS OF THE ILEO-CÆCAL VALVE.

PÉAN divides constrictions of the ileo-cæcal valve into two classes, those due to neoplasms and those of inflammatory origin. Various methods of treatment have been suggested: Maydl, Barton, and Jessop have formed an artificial anus above the joint of constriction; Barton resorted to digital divulsion, and Kraussold, Maydl, and Barton have not hesitated to perform resection. Péan suggests, as a new form of treatment, dilatation at the point where the constriction exists without taking away any portion of the intestinal tube. This is done as follows: An inch and a half above and parallel to the fold of the groin, an incision is made through the skin and cellular tissue from the anterior superior iliac spine to the spine of the pubes, and for half this distance through the aponeurosis and muscles. An opening through the peritoneum, half an inch long, is then made. Bleeding vessels are clamped and all antiseptic precautions observed. As soon as the ileo-cæcal valve is discovered the bowel is tied above and below the cæcum with a rubber tube, which is passed through the mesentery by the aid of sharp-pointed forceps. These precautions having been taken, the intestinal wall is incised at the level of and at each side of the valve for a distance of three inches. After washing the internal surface with a solution of carbolic acid (1-10-100), the condition of the valve can be ascertained. All abnormal tissue filling up the lumen of the bowel is then cut away close to the mucous membrane. This being done, the two extremities of the intestinal wound are brought together by means of the forceps. The incision, which was at first longitudinal, takes now the form of a lozenge, two sides of which are represented by the lips of the small intestine and the other two by those of the large intestine. Bringing the forceps nearer together the incision becomes transverse, and in this position the edges are sutured. Catgut is used to unite the mucous membrane and muscular coat, and silk for the outer portion of the muscular and the serous coat. The ends of the latter are cut off close. The rubber tubes are then untied, and soon after this the blood resumes its course in the vessels, and the fecal matter begins to pass through the bowel with incredible rapidity. Should the sutures give way and gas and

faeces escape, the abdominal cavity should be washed out with sublimate solution, and the stitches re-inserted. Iodoform is dusted over the bowel, the abdominal wound is closed and covered with a dressing of iodoformized, sublimated wadding.

The reasons of Péan for preferring this mode of operation are:

1. That it is easily performed, since the surgeon operates upon a superficial portion of the bowel, and one which is easily seen.

2. It requires a smaller number of sutures than does resection, which shortens the duration of the operation, and diminishes the chances of perforation, of faecal fistula, of an artificial anus and of septic peritonitis.

3. It does not give rise to a circular constriction, as does resection.

4. Finally, it establishes at the place of constriction, a dilatation large enough for the faecal matters to pass through.—*Bulletin de l'Académie de Médecine*, December 30, 1890.

REVIEWS.

PHYSICIANS' LEISURE LIBRARY, No. 6; MODERN TREATMENT OF HEADACHES. By ALLAN McLANE HAMILTON, M.D. Detroit: George S. Davis, 1890.

THE chief value of this book to the ordinary practitioner of medicine will be the prescriptions which are to be found on almost every page, and also in the directions which are given for the application of electricity and other external methods of giving relief to persons suffering from headache. The book, like most of its series, does not profess to be a very deep or learned account of this most frequent symptom of disease, and is, in consequence, not loaded down with much bibliography, but with practical material.

The author recognizes the fact that gout and rheumatism are often the cause of a great deal of cephalic pain, and is not content with describing the treatment of headache by drugs but also gives instructions as to the diet.

A BIOGRAPHY OF EPHRAIM McDOWELL; WITH ARTICLES RELATING TO OVARIOTOMY. By MARY Y. RIDENBAUGH. New York: Charles L. Webster & Co., 1890.

THE author of this work is the granddaughter of the man who has been called the "father of ovariectomy," and she has been sufficiently impartial to include both those things which are favorable and unfavorable to this great surgeon. After reading the details of his life we are told of his idiosyncrasies and those of his relatives, more particularly concerning James Nash McDowell, a nephew, who was so bitter toward Abraham Lincoln that the following authentic story is told of him:

"The Doctor had a crank idea that in that commodious building one room should be set apart and designated as 'Hell,' in commemoration of Abraham Lincoln, who, although long since dead, held a bitter place in the heart of the eccentric old doctor. It was my pleasure to visit my relative (Dr. McDowell) soon after he refitted

up his college and residence; and after his congratulations of meeting were over he remarked that he wanted to take me to 'Hell.' Not comprehending his meaning, I replied, 'I hope I shall never be so unfortunate as to see H—l.'

"He immediately caught me by the arm, and leading me through several narrow hallways, we finally halted in front of a very heavy double door, when drawing a large brass key from his pocket and placing it in the lock, the door soon yielded and swung wide open.

"I noticed as I passed into this strange room that the word 'Hell' in gilt letters stood out in bold relief over the entrance. The room was very long and narrow, and lacked carpet or other furniture.

"On entering this Dantean abode, the first salutation that greeted me was the venomous hissing of an unusually large rattlesnake, that was to be seen darting out its fiery tongue between the bars of its cage.

"To the left a huge crocodile was noticed, such as crowd the southern sloughs and bayous, and dot the lowlands and canebrakes of the tropical country. The hideous reptile crept slothfully through his pool of tepid water, now and then swinging his immense jaws as though he would like to make a meal of us; but he too was confined within his own limits, and there was no danger.

"Becoming interested in this weird and unnatural place I followed the Doctor, not unwillingly and certainly with a much aroused curiosity, deeper into the mysteries of his 'Hell.'

"Glancing to our right we saw the bird of ill omen perched upon his pole, seemingly oblivious of us or of its surrounding; occasionally it would grit its bill together, causing a peculiar unwelcome sound. Alongside the bird was a lizard, singing its unvaried song.

"At the extreme end of the narrow hall-like room a gallows had been erected, suspended from which was an effigy of ex-President Abraham Lincoln. For a moment (the scene was so life-like) I was shocked and startled.

"There were several other images, one in particular representing Lucifer and his imps. It was a novel sight to witness. Dr. McDowell took a lively interest in everything connected with this particular apartment."

The book loses part of its value from the absence of an index, although the table of contents is sufficiently voluminous to give a very good idea of what it contains. The labor of collecting the material for its pages must have been very great, and we hope that the author will sell a sufficient number of copies to remunerate her for her expenditure of time and money.

CORRESPONDENCE.

CHICAGO.

ACCORDING to the last report of the Chicago Board of Health, the registered deaths from all causes in this city for the past year were 16,946. Of these, 724 were by accidents, 182 by suicides, 45 by murderous shootings, stabbings, blows, and violence; 215 women from confinement, miscarriage, or abortion; 295 children were born defective or died of causes incident to birth, and 3 persons were found dead, making 1482 deaths not caused by sickness. Deducting the above from the total mor-

tality, we have 15,464 deaths from sickness. Of these, 5499, or 35 per cent. of the whole, were from diseases of the respiratory tract. Consumption caused 1556 deaths; pneumonia, 1170; bronchitis, 876, and so on throughout the list. 1705 deaths were from diseases of the pharynx and larynx, and 3794 from disease of the tubes and tissues of the lungs.

The foundation for a complete cottage system has been laid here for insane patients. The four cottages now almost completed are model institutions, everything connected with them being of the latest improved pattern. They were erected at a cost of \$55,933. The small percentage of patients cured at the insane asylum compared with the State institutions is undoubtedly due partly to the fact that the State institutions send their incurable cases from this county to Dunning and partly to the arrangement of the buildings. Many cures cannot be effected unless the patients are properly classified, and this cannot be done in any other way than by the cottage system.

Dr. John A. Benson, Superintendent of the Insane Asylum at Jefferson, presented his annual report to the Public Service Committee a few days since. During the year 470 patients were admitted, and the daily average of inmates was 1066.

The late Professor James Adams Allen donated his large and valuable library to the Presbyterian Hospital for the special service of the staff. It may be used, however, by the permission of the superintendent, for reference by members of the profession and by the students of Rush Medical College.

The new edifice of the Woman's Medical College contains everything to be desired in the way of offices, laboratories, dressing- and study-rooms, and a commodious amphitheatre unrivalled for comfort and convenience. One of the amphitheatres of the old building is still retained for chemical and anatomical lectures, so that the new rooms are kept free from the disagreeable odors necessarily connected with these departments.

Dr. I. N. Danforth reported to the Pathological Society a case of tubercular disease of the kidneys and bladder, and presented the diseased organs.

The patient was a man, thirty years of age. About four years prior to his death he began to experience pain in the region of the left kidney, and shortly after that the urine became purulent but remained normal in amount and free from blood. The symptoms, in the main, were negative. The amount of pus was not enough to indicate a cyst of the kidney or any great amount of trouble with the bladder. He had no elevation of temperature; and there was no cardiac disease, but an anæmic condition developed. His appetite and digestion failed; and he gradually lost flesh.

The autopsy revealed a tubercular deposit in the upper lobe of the left lung, with two or three small recent cavities, but no other disease except the lesion of the left kidney, ureter, and bladder, which were presented for examination. The ureter was pervious, although the passage was small, but did not communicate with the bladder. The kidney was enormously large and lobulated. The bladder was somewhat thickened, and at the point where the left ureter should enter the bladder there was a hard, fibrous mass, which could very easily occlude the ureter.

Dr. Henry T. Byford, in speaking of the healing of open wounds without suppuration, in a clinical lecture, said that the secret of causing a wound to heal without suppuration is really known to but few, although the principle is known to all. The principle involved in the method he uses is that germs cannot develop without moisture, and the whole secret consists in keeping the wound dry.

His method is to pack the cavity loosely with sterilized gauze if it be large or with sterilized absorbent cotton if small, and use a dry aseptic dressing over all. Neither iodoform nor any other powder should come between the packing and the dry gauze over it, for powder interferes with efficient capillary drainage and the sterilizing process. In extraperitoneal wounds, the packing should be changed from two to four times daily, if the discharge is serous or purulent, until the packing is no longer wet through, then once a day, then once in two days until the dried surfaces have contracted. As long as the discharge is purulent or abundant, he washes the cutaneous edges with alcohol at each dressing to keep the skin clean. The cavity is merely dried out thoroughly with absorbent cotton or gauze, and neither drugs nor moisture allowed in it. In hospital wards, where serous cavities are frequently opened, this method he considers invaluable, since it enables us to do away, to a great extent, with suppuration and its dangers.

"DIGESTION, ASSIMILATION, AND OXIDATION."

To the Editor of THE MEDICAL NEWS,

SIR: I wish to call attention to several statements which were made in the lecture on "Digestion, Assimilation, and Oxidation: their Normal and Abnormal Conditions in Relation to Health and Disease," in THE MEDICAL NEWS, January 10, 1891. These statements, if not absolutely incorrect, are certainly misleading and not in accordance with the facts and experiments of progressive physiological chemistry. The points to which exception is taken are contained in the following sentences, which, for the sake of clearness, are quoted intact: "The chemico-physiological activity of the saliva is located in the ptyalin, which is an organic *nitrogenous* ferment, having for its function the hydration of starch, or the conversion of starch into maltose, conveying it, as it were, one step forward in the chemico-physiological process. This action is effected in *only an alkaline* solution, or in an *acid medium* the percentage-acidity of which has not exceeded *ten per cent.*"

First, in regard to the nature of the ferment which produces this change in the amylaceous elements of food, the writer states unrestrictedly that it is an organic nitrogenous body. Although elaborate methods are employed by which there may be obtained from saliva solutions which appear to be almost entirely free from proteids and yet are intensely amylolytic, "even these"—so says Foster—"probably contain other bodies besides the really active constituent." "Whatever," he continues, "the active substance be in itself, it exists in such extremely small quantities that it has never yet been satisfactorily isolated; and, indeed, the only clear evidence of its existence is the manifestation of its peculiar powers." It seems hazardous, therefore, to make any dogmatic statement concerning substances which, like

ptyalin, pepsin, amylpsin, or the enzymes in general, have been obtained in such small quantities at a time and in a state of such questionable purity that their exact chemical characters have not yet been ascertained.

The most elaborate method and the one most employed in obtaining the digestive ferments in a state of comparative purity is that by which Brücke separated what he termed pepsin. This method depends upon the ferments being carried down from solutions with precipitates produced in them. Cohnheim applied this method of Brücke to the saliva, and employed calcium phosphate as a precipitate to carry down ptyalin. But calcium phosphate carries down with it not only the ptyalin, but also the albumin and doubtless other proteid matters in the saliva. The complete separation of these bodies from ptyalin is very difficult and the final analysis of the substance obtained, showing the presence of nitrogen, has led to the assumption on insufficient grounds that ptyalin is nitrogenous. The only real proof, aside from this imperfect analysis, rests on the fact that its action is destroyed by boiling.

Next, in regard to the medium in which the saliva exhibits this peculiar amylolytic power, and the hindering or destructive influence of acids and alkalies on the diastatic action of the salivary ferment, Dr. Porter states that "this action is effected only in an alkaline solution or in an acid medium the percentage-acidity of which has not exceeded ten per cent."

The early experiments employed to demonstrate this point and from which the above conclusions, or similar ones, have been drawn, were inadequate, because based on rough calculations and a neglect of the real reaction of the chemical substances used. The starch used was apt to be acid in its reaction, and the normal alkalinity of the saliva (0.080 per cent., calculated as sodium carbonate) was not properly taken into account.

It is undoubtedly true, as a general principle, that the conditions in the body-economy are the best suited to the ends they are intended to accomplish. This argument has been used as one method of demonstrating that the natural and true acid secretion of the gastric juice is hydrochloric rather than lactic acid. The fact that pepsin is found experimentally to digest proteid matter most readily and completely in hydrochloric acid solution is an argument in favor of that acid as the one really provided and employed by nature. Thus, since the saliva is normally alkaline in its reaction, it is fair to suppose that the action of its ferment would be most manifest in such a medium. The experiments by which it was proved that such was not the case, although interesting, historically, in showing how a popular and well-grounded belief must yield to precise scientific investigation can only be alluded to here and the steps of proof given in passing.

At some time previous to 1885 it was demonstrated by Chittenden and Ely that neutralized saliva had as great diastatic power as the unneutralized or normally alkaline saliva. Even in this experiment the recorded result plainly indicated a greater diastatic power on the part of the neutralized saliva, the alkaline saliva converting 41.58 per cent. of the starch into sugar, while the same quantity of neutralized saliva changed 43.28 per cent. Although in this experiment the amount of saliva used was large, and thus an element of possible error intro-

duced, still every precaution of precision was taken, and the starch employed was manufactured by the experimenters in such a way that it should be absolutely neutral in its reaction.

In 1884 Langley and Eves¹ made the statement, unaccompanied by data, that "neutralized saliva converts starch into sugar much more actively than unneutralized saliva." These two statements are quoted by Chittenden and Smith² in their article on "The Diastatic Action of Saliva," as the only two recorded statements up to that time regarding the relative diastatic action of the neutralized and normally alkaline secretion. The experiments of Chittenden and Smith show that there is a very great difference in the action of ptyalin in neutralized and unneutralized saliva—a difference more manifest when the saliva is greatly diluted, the explanation of which will appear later.

The influence of sodium carbonate on the diastatic action of saliva has also been made the subject of experiment, and the conclusion of Chittenden and Smith is that "even much less than 0.0015 per cent. of sodium carbonate with unneutralized diluted saliva may decidedly retard the action of the ferment, while in similarly diluted saliva 0.005 per cent. of sodium carbonate may prevent diastatic action almost entirely."

As to the influence of acids on the diastatic action of saliva, Dr. Porter states that the action is effected "in an acid medium, the percentage-acidity of which has not exceeded *ten per cent.*" A large number of experiments to demonstrate the influence of acids on the diastatic action of saliva have been made by Langley and Eves, Chittenden and Ely, and Chittenden and Smith, and attention has been called to the fact that no definite statement can be made as to the absolute percentage of acid necessary to hinder or destroy the ferment's action. For there are two very important elements which come in to modify the influence of the acid or alkali, and which permit of only a general statement or a statement for a saliva of a certain dilution. These are the conditions of the acid or alkali, whether free or combined, and the amount of proteid matter present.

That the presence of proteids influences the diastatic action has been proven, and it has been pointed out by Chittenden and Smith³ that in addition to the combination of peptone and acid, the proteid matter manifests a direct stimulating influence. Thus the presence of 0.025 per cent. hydrochloric acid prevented the conversion of but 3.50 per cent. of the starch into sugar, the presence of 1 per cent. of peptone allowed the conversion of 48.85 per cent. of the starch.

The method recommended by Danilewsky for the detection of free acid by the use of tropæolin OO dissolved in methyl alcohol, now enables us to distinguish free acid present from that combined. Both combined and free acids influence the action of saliva, and both have a hindering and destructive action. The combined acid (or presence of acid-proteids, formed by the action of the acid on the proteid matter in the saliva) causes an increased action of the ptyalin, except when present in comparatively large amount, so that while combined

¹ Journal of Physiology, vol. iv. No. 1.

² Transactions of the Connecticut Academy, vol. vi.

³ Loc. cit.

acid has some destructive action, the retarding influence of the larger percentage of acid-peptones is out of all proportion to their power of destruction.

In testing the influence of *free* acids on the diastatic action, it must be borne in mind that the normal alkalinity of the saliva is 0.080 calculated as sodium carbonate, and that the saliva contains a certain amount of proteid matter. When the saliva has been very carefully neutralized and its proteids just saturated, it is found that 0.0010 per cent. of *free* acid appreciably diminishes the saliva's action, and 0.0030 per cent. almost entirely stops the amylolytic action. Moreover, acid approximating to the strength of the acid of the gastric juice has a *destructive* action on the salivary ferment. The action of 0.002 or even 0.005 per cent. of hydrochloric acid for thirty minutes, causes little if any destruction of the ferment, since on neutralization diastatic action is vigorously continued. Pronounced destruction does take place with 0.005 to 0.010 per cent. of free hydrochloric acid. Thus, we see that under no condition could the amylolytic action of the ferment take place in an acid medium the acidity of which was 10 per cent.

The importance of this subject is shown from its bearing on the amylolytic action of saliva in the stomach. It is well known that during the early stages of digestion, there is no *free* acid in the stomach, and that as digestion in the stomach proceeds the acidity increases. Thus the amylolytic ferment of the saliva undoubtedly continues its action on the starchy foods for some time in the stomach and until its acid-proteids increase in amount and approach to their point of saturation. Even before *free* acid makes its appearance, the diastatic action may entirely stop, and all salivary ferment must ultimately be destroyed in the stomach.

The writer in his classification of food-stuffs says, "so far as nourishing or building up any of the component parts of the body is concerned, starch, sugar, and fat furnish *no nutriment* to the system and in this sense I shall continue to speak of the CHO compounds as being absolutely non-nutritious, and only of service to the body in so far as they yield heat, energy, lubrication, and *rotundity of form*." And again he divides the food-stuffs into two classes, first, "the *nutritious* albuminous, nitrogenous, or CHNOS compounds, and, second, the *non-nutritious* starches, sugars, and fats, or the CHO compounds."

In making this division of food-stuffs into *heat-producers* and *tissue-formers*, he has adopted a classification which Huxley calls "misleading and indeed erroneous." That the proteids are oxidized is undoubted and their oxidation, as well as the oxidation of non-nitrogenous foods, must give rise to heat and energy. And from the evidence of carbonaceous waste when a muscle contracts there is reason to think that the non-nitrogenous foods may also be directly built up into the tissues. Mr. Huxley says, moreover, that "as soon as the elements of the food, in fact, get into the blood, the distinction between the two classes is lost; *both* form tissues, and *both* supply heat." For this reason Huxley prefers the classification of the vital food-stuffs into the *essential*, or proteids, they alone being, in the nature of things, necessary to life; and the *accessory*, or fats, sugars, and starches, which, however important, are not absolutely necessary.

Finally, Dr. Porter states regarding the digestive action of the gastric juice that "the *nitrogenous* envelope surrounding the starch-granule or oil-globule may be digested away, thus setting free the granulose and oil." This he calls the starch-hydrating and fat-freeing action of the stomach.

According to the teaching of organic chemistry we learn that starch is a white, velvety hygroscopic powder consisting of round or elongated granules in concentric layers, the interior of these granules being granulose and their husk cellulose. A possible erythro-granulose may exist. These chemical substances are, however, in all text-books of organic chemistry, classed among the carbohydrates and are never credited with any nitrogen. Their formula $(C_6H_{10}O_5)_n$ shows that besides carbon they contain only hydrogen and oxygen, always, too, in the same proportion in which their elements are present in water, therefore, they (and this of course includes the starch-envelope) are true carbohydrates and non-nitrogenous.

GEORGE L. AMERMAN.

137 WALL STREET, NEW HAVEN, CONN.

NEWS ITEMS.

Report on Koch's Lymph to the Dauphin County Medical Society.—At a recent meeting of the Dauphin County Medical Society, Drs. E. H. Coover, Thomas J. DuNott, and Hugh Hamilton reported upon Koch's lymph after many observations in the hospitals of New York and Philadelphia, which they had visited. This committee regard the discovery as one of much importance, its power being intense, the rapidity of its cure unparalleled; but the committee warns the profession and the public against the dangers of the method in the hands of unskilful persons. In treatment by the lymph the most salubrious surroundings are necessary, the diagnosis must be absolutely correct and the control of the patient by the physicians unquestioned. Such conditions are alone attainable in proper hospitals or in private with the best environments.

American Electro-therapeutic Association.—The American Electro-therapeutic Association was organized on January 22, 1891, at the Academy of Medicine, No. 17 West Forty-third Street, New York, by the adoption of a Constitution and By-laws, and the election of the following officers:

President.—G. Betton Massey, M.D., of Philadelphia.

Vice-Presidents.—William James Morton, M.D., and Augustin H. Goelet, M.D., of New York.

Secretary.—William H. Walling, M.D., of Philadelphia.

Treasurer.—George H. Rohé, M.D., of Baltimore.

Executive Council.—Horatio R. Bigelow, M.D., of Philadelphia; Franklin H. Martin, M.D., of Chicago; William F. Hutchinson, M.D., of Providence, R. I.; Frederic Peterson, M.D., of New York; and Chauncey D. Palmer, M.D., of Cincinnati, Ohio.

The object of the Association, as stated in Article II. of the Constitution, is "The cultivation and promotion of knowledge in whatever relates to the application of electricity in medicine and surgery."

The Association starts with a strong and vigorous

membership, and has every prospect of a most useful and successful career.

The next meeting will be held in Philadelphia, in September of this year.

William H. Walling, M.D., Secretary, 2005 Arch Street, Philadelphia, Pa.

Marine-Hospital Service.—The annual report of Dr. John B. Hamilton has been made to the Secretary of the Treasury for the year ending June 30, 1890. The medical inspection of immigrants in New York harbor is a newly-assumed duty that, during the latter part of the fiscal year, fell to the charge of this service. It is expected that a hospital and asylum will presently be required, to be established on Ellis Island, in order to deal humanely and efficiently with some of the unfortunates who are shipped to this country as an economical way of disposing of troublesome charges. In regard to the constant menace from Cuban yellow fever, the report avers that this country would be a gainer, in a pecuniary sense, if it could give to the Cuban Government sufficient funds to make and keep Havana a healthful seaport. The past year was the ninety-first of the existence of the service.

Suit for Damages on Account of Pain after Amputation.—This suit was brought for damages against a railway corporation, the result of an accident which was the occasion of the amputation. The case was heard in the courts of New York State, and was carried up to the Court of Appeals; the defendant was the Delaware, Lackawanna and Western Railway. The action was brought to obtain compensation for damages, because of a "special kind of pain" complained of after the amputation of an arm, namely, a pain which is located in the member that has been cut off. The plaintiff was allowed to testify on the trial that he had suffered continuous pains seemingly located in the amputated hand and arm, and on appeal it was argued that such testimony should not be allowed. The appellate court has recently decided that this objection was not well taken, and that the plaintiff's evidence was competent. One of the points raised by the defence was that this pain in the hand and arm of the plaintiff was purely imaginary and a delusion, and that, because the arm had been cut off, there could not possibly be any pain located therein. The Court of Appeals meets this contention by means of the following answer from the standpoint of law: "The reason urged in support of the exception is that such pain was imaginary and a pure delusion and was not a direct or a natural result of the injury received; the plaintiff had testified that this was a part of the painful suffering he had endured after the accident and the amputation of the arm, and whatever was its nature, if his testimony was true, the sensation was that of pain and the result of the injury. Pain is but the sensation of a condition that produces it, and the fact that it seemed to come from or to reside in the hand, as if its connection with the body remained, is only descriptive of the pain he suffered. It was no less the subject of consideration because the location of it was deceptive."

Plain Statement from the Medical and Surgical College of New Jersey.—The Medical and Surgical College of the State of New Jersey has just published a "Plain State-

ment" of its contest with the health authorities of Jersey City. It is published in a pamphlet of forty-six pages, and is probably as candid a statement as was ever made by any so-called college; it contains enough testimony against itself to damage the faculty forever. The head of the concern is proved, by this pamphlet issued over his own signature, to be an offspring of the bogus institution run by "Dr." Buchanan under the style of the Eclectic Medical College of Pennsylvania, and to be an advertising specialist residing in New York City. Connected with the scheme are several men who have doubtful reputations. According to the statement of the Hudson County Medical Society (*THE MEDICAL NEWS*, February 7, 1891), the so-called college has never had any of the conveniences or requisites which would enable its so-called students to attend either hospital instruction, clinics, or anatomical demonstrations. One of the students stated, however, that there had been two dissections of sheep's heads, and one of a calf's heart. It does not appear from the pages of this pamphlet that any reputable citizen of New Jersey has ever been, or has ever been invited to be, connected with the undertaking. Nevertheless, there have been allowed to "graduate" two classes, one containing twelve persons, and the last containing three; one of these persons only claimed a residence within the limits of New Jersey.

Medical Organization in Japan.—The *Tei-I-Kwai Medical Journal* of Tokyo, Japan, November 22d, describes in idiomatic language the establishment of a national society of the medical men who have studied their profession in America and Europe. It says: "The principal leaders in Tokyo caused themselves to start a medical association for the object of which they have to gather all the medical brethren in every province of the Empire and to exchange their knowledges. The endeavor of them brought this scheme to born in April first under the name of the First Japanese Medical Association, the meeting was held for a week and was closed with every success. It was hoped to hold this Association in future once every four years." There are not more than 5000 who have the knowledges above referred to, but they stand in the forefront of reform, "for indeed the reformation of Japanese medicine is the task of them, for this object they join to constitute medical societies and respective society endeavors to publish their journal."

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to *THE MEDICAL NEWS* will be liberally paid for upon publication, or 250 reprints will be furnished instead of payment, provided request for reprints be noted by author at top of manuscript. When necessary to elucidate the text, illustrations will be provided without cost to the author.

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